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TRANSPORTATION of Florida Frozen Orange Juice Concentrate

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A CASE STUDY OF CARRIER COMPETITION INDUCED BY DYNAMIC INDUSTRY GROWTH

Washington, D. C. May 1955
U. S. DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service

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SUMMARY

Development of the frozen orange juice concentrate industry in Florida fundamentally modified the form in which the State's oranges had previously been marketed. Growing at a phenomenal rate, the new industry introduced unusual competitive elements into the transportation service it required.

In the initial season, 1945-46, the single pilot plant in Florida produced 226,000 gallons of frozen concentrate, and used less than half of 1 percent of the State's orange crop. In the 1952-53 season, 21 processing plants at 18 separate locations in Florida produced 46.5 million gallons and used 45 percent of the orange crop.

For the first few seasons, concentrate was shipped principally to markets on the Eastern Seaboard. Because few motor carriers had either refrigerated equipment or operating authority from the Interstate Commerce Commission to haul the product, producers shipped largely by rail in ice-and-salt refrigerator cars. But markets widened rapidly, first into the Northeast and later into the North Central States. When it became apparent that the rail cars then in use could not maintain the low temperatures desired by the concentrate industry, shippers encouraged motor carriers to make application to the ICC for operating authority. They also encouraged them to purchase mechanically refrigerated, heavily insulated trailer equipment. Their action set off a sharp competitive battle for traffic which has continued down to the present.

To capture and to hold a major share of the Florida concentrate traffic has been a primary concern of the railroads during the past decade. For many years they had carried the greater proportion of Florida oranges marketed as fresh fruit. When canned single-strength orange juice was developed, the railroads lost a considerable tonnage of fresh fruit, although they made up for some of the loss by moving a large proportion of the canned product. The subsequent shift to the production of frozen concentrate further reduced their traffic in fresh fruit--in the 1952-53 season, a single carload of frozen concentrate contained the juice equivalent of 12.5 carloads of fresh oranges.

Moreover, for several seasons competition from motor carriers who operated mechanically refrigerated equipment reduced the railroad's share of the concentrate traffic. The number of mechanically refrigerated rail cars in service rose from fewer than 10 in the 1949-50 season to 65 at the end of the 1950-51 season, and to 165 at the end of the 1952-53 season. This first wide-scale introduction of mechanically refrigerated cars was induced primarily by the railroads' desire to get concentrate traffic. By supplying shippers with these cars, and by establishing competitive rates, the railroads since 1950 have succeeded in attracting an increasing share of concentrate traffic to their lines. In the 1950-51 season,

traffic was about evenly divided between rail and truck carriers; in the 1952-53 season, the railroads transported 60 percent of the concentrate shipped out of Florida to all destinations.

According to the motor carriers, their ability to compete for traffic has been inhibited by certain aspects of regulation from which the railroads are free. The ICC restricted the number of units of equipment motor carriers could operate under temporary authority. Grants of authority have been too narrow to enable carriers to serve rapidly changing origins and destinations. The necessity to return time and again to the Commission to request certification has been time-consuming and expensive to the motor carriers, and has made it necessary for some of them to forego business during lengthy proceedings. Moreover, the laws of certain States relating to taxes and to size and weight of trucks have had special cost-raising effects on refrigerated motor carriers.

Increased truck costs have been reflected in higher hauling charges, with the result that motor carrier rates to many markets in the Northeastern and North Central States have not been competitive with rail rates. Nevertheless, flexibility of operations and the ability to give door-to-door delivery service have enabled the motor carriers to retain a sizable, though diminishing, proportion of the Florida concentrate traffic. In the 1952-53 season, 40 percent of the total volume of concentrate was shipped from Florida by truck to all destinations as against approximately 50 percent in the 1950-51 season. From limited data available, however, it does not appear that there has been any decline in the absolute volume (tonnage) moving to market by motortruck.

Throughout the past decade, the principal problem of shippers has been to obtain a sufficient amount of adequately refrigerated equipment in which to move an ever-increasing volume of concentrate from the expanding production area to the rapidly expanding consuming areas. Shippers' experience with both rail and motor carriers has shown that they need the services of both.

Market growth in the Northeastern and North Central States appears to be leveling off. Although the share of traffic handled by each type of transport may fluctuate somewhat in the future, the preferences of shippers for carriers to serve their markets seem to be assuming a fairly definite pattern. Motortruck service is used while markets are being built up, when speed and flexibility are important, and at all times for secondary service on shipments to distributors who do not have rail facilities or who cannot accommodate full carloads at one time. Railroads are used to service established markets where large volume is essential but where speed is not necessarily a factor. This general sequence and pattern may well be repeated in the coming intensive development of western markets.

TRANSPORTATION OF FLORIDA FROZEN ORANGE JUICE CONCENTRATE 1/

A case study of carrier competition induced by dynamic industry growth

By Margaret R. Purcell, Transportation Economist,
Agricultural Marketing Service

INTRODUCTION

Ten years ago, few people had heard of frozen orange juice concentrate. In the 1945-46 season, the single pilot plant operating in Florida processed 226,000 gallons and used less than one-half of 1 percent of the nearly 50 million boxes of oranges produced in Florida in that season. During the season of 1952-53, however, Florida's 21 concentrating plants turned out 46.5 million gallons and used about 45 percent of the State's 72 million box crop of fresh oranges.

Today, this frozen product is available to consumers at thousands of food stores, restaurants, and refreshment bars throughout the country. In the 1952-53 season, it accounted for more than 40 percent of all frozen food sales, and was being purchased by almost a third of all American families, who were consuming more than 4 million gallons a month. 2/ Consumer acceptance, together with rapidly multiplying retail outlets, gives the industry reason to believe that sales of the frozen juice will continue to expand.

The new concentrate industry in Florida significantly modified the form in which oranges had traditionally been marketed. Numerous representations have been made to the Interstate Commerce Commission within the past half-dozen years by the railroads seeking to maintain their citrus traffic volume, by motor carriers seeking operating authority to transport frozen concentrate, and by shippers seeking carriers to move the product. Such representations, involving a conflict of interests, have to be weighed carefully. They seemed to indicate, however, that existing transportation patterns were disrupted and new factors of competition introduced within a short space of time. Assembly and analysis of scattered information concerning the new industry and its transportation service was, therefore, believed desirable. It was expected that a study might show whether the problems of transporting orange juice

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1/ This study was made under authority of the Agricultural Marketing Act of 1946 (RMA, Title II).

2/ These figures are based upon concentrate produced from both Florida and California oranges. California plants produced about 440,000 gallons in the 1947-48 season, their first, and about 4 million gallons in the 1952-53 season.

concentrate have been somehow unique, and whether any unusual competitive transportation factors are present or are developing. This report presents major facts and conclusions developed from study of ICC records and other industry material.

HOW FROZEN ORANGE JUICE CONCENTRATE IS MANUFACTURED AND PACKED

In the production of frozen orange juice concentrate, the juice from fresh oranges is reduced to a smaller volume by a low-temperature, high-vacuum evaporation process. A portion of freshly-squeezed orange juice is then added back for flavor, after which the product is packed in containers, quick-frozen, and placed in storage. To make it drinkable, the consumer needs only to add three parts of water to one part of the frozen concentrate. Because it is generally unpasteurized, it is essential that the concentrate be kept at a relatively low temperature--preferably 0°F. or below--at all stages of its journey from processor to consumer.

Although not generally available in the early years, almost 80 percent of Florida's frozen orange juice concentrate output is now packed in 6-ounce consumer-size cans, 48 to a case. The second most important size from the standpoint of the trade is the 32-ounce institutional-size, packed 12 cans to a case. This is the size purchased principally by hotels, restaurants, and others who buy in quantity. About 7 percent of the 1952-53 season sales was in the institutional-size container. It was expected that 10 million gallons would be packed in containers of this size in the 1953-54 season. The third most important size is the 12-ounce consumer-size can, packed 24 cans to a case. Although less than 6 percent of the 1952-53 season's output was marketed in containers of this size, consumer acceptance of this package has been so encouraging that several processors were planning a substantial increase for the 1953-54 season. Concentrate packed in 5-gallon containers in 1952-53 accounted for about 1 percent of the total pack.

In addition to the sizes mentioned, a 4-ounce consumer-size can, a 46-ounce can, and a No. 2½ size can were tried out experimentally by several processors, but have been largely discontinued.

During the 1951-52 season, a new 2½-ounce plastic pouch package suitable for soda fountain sale was introduced by three Florida processors. It was anticipated that as much as 4 million gallons of the Florida concentrate might be marketed in this form during the 1953-54 season. Florida processors were also said to be considering the possibility of marketing a consumer-size plastic package. 3/ Some in the trade expected that the soda fountain pouch pack would face stiff competition from juice sold from counter dispensers 4/. Others have felt, however, that the pouch has great possibilities,

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3/ Quick Frozen Foods. June 1952, Sept. 1952, March 1953, and June 1953.
4/ Several of the larger producers have made heavy investment in dispenser equipment. It is estimated that some 50,000 are in use about the country, primarily in soda fountains and in restaurants.

primarily because it gives fixed-portion control and obviates the danger of down-grading of juice, a matter of long-standing concern to the industry. The pouch also eliminates cleaning and maintenance of dispensers.

THE IMPACT OF FROZEN ORANGE JUICE CONCENTRATE ON THE FLORIDA ORANGE INDUSTRY

When new producing or consuming areas develop, existing marketing facilities must expand or new facilities must be provided to service them. Because concentrate 5/ production increased at such a phenomenal rate, and because outlets for the product developed almost overnight, the new industry had a sudden and tremendous impact on the marketing pattern of the Florida orange industry as a whole.

Production and Utilization of Florida Oranges

Table 1 shows a steady increase in Florida orange production from 1945 through 1952. Output in the 1952-53 season was 46 percent greater than that of the 1945-46 season when frozen concentrate--the commodity dealt with in this report--was first marketed generally. It was also 24 percent greater than that of the 1948-49 season, when production of frozen concentrate first became really competitive with other uses of oranges.

Table 1 also shows the output, in gallons, of single-strength canned orange juice and of frozen orange juice concentrate. The output of single-strength juice has remained relatively steady over the entire period covered by this report--1945-53. In the 1952-53 season, 57.5 million gallons were produced compared with 62.6 million in the 1945-46 season.

5/ As used hereafter, "concentrate" will refer to frozen orange juice concentrate only.

Table 1.-Production of Florida oranges and processed orange juices, 1945-52 1/

Season	Production of: Oranges	Single-strength canned orange juice	Frozen orange juice concentrate
	1,000 boxes 2/	1,000 gallons	1,000 gallons
1945-46	49,800	62,631	226
1946-47	53,700	58,800	559
1947-48	58,400	87,016	1,910
1948-49	58,300	57,074	10,233
1949-50	58,500	59,225	21,647
1950-51	67,300	68,105	30,758
1951-52	78,600	65,545	44,035
1952-53	72,200	57,484	46,554

1/ Florida citrus season normally extends from September through July. Frozen orange juice concentrate normally is processed from mid-December to mid-June.
2/ Net content of Florida box is 90 pounds.

Bureau of Agricultural Economics. Citrus Fruits - Production, Farm Disposition, Value, and Utilization of Sales. Annual Report. Also Florida Canners Association. Annual Summaries.

Output of frozen concentrate has shown a phenomenal growth. Starting with 226,000 gallons in the initial season of 1945-46, production rose to the competitive level of 10 million gallons in 1948-49. The 1948-49 figure had tripled by 1950-51 when about 31 million gallons were turned out. Output of 46.5 million gallons in the 1952-53 season was four and one-half times that of 1948-49.

Table 2 shows, in terms of boxes, the volume of oranges utilized annually for fresh and processed sale. It provides a more significant measure of the relative importance of the various uses to the Florida citrus industry.

In the 1945-46 season, when frozen concentrate was first introduced, 61 percent of the total orange crop was marketed as fresh fruit, while single-strength canned orange juice utilized 28 percent. Even in the 1948-49 season, when concentrate production was first felt marketwise, 53 percent of the total orange crop was still being marketed as fresh fruit. The proportion utilized in that season for processing as single-strength canned juice, however, dropped to 21 percent. In the 1952-53 season, out of a total orange crop about half again as large as that of the 1945-46 season, only 36 percent was marketed as fresh fruit, and only about 14 percent was used for processing as single-strength canned juice. The drop in the proportions of oranges sold in the form of fresh fruit and single-strength canned juice is a direct reflection of the rapid consumer acceptance of the frozen juice concentrate.

Table 2.--Major uses of Florida oranges, 1945-53 1/

Season	Oranges utilized for--					
	Fresh sale		Single-strength canned juice		Frozen juice concentrate	
	Volume	Percent of total crop	Volume	Percent of total crop	Volume	Percent of total crop
	1,000 boxes	Percent	1,000 boxes	Percent	1,000 boxes	Percent
1945-46	30,280	61	13,932	28	200	2/
1946-47	32,564	61	13,139	24	466	1
1947-48	27,579	47	20,398	35	1,603	3
1948-49	31,048	53	11,965	21	8,320	14
1949-50	23,393	40	11,828	20	17,797	30
1950-51	24,935	37	12,554	19	23,197	34
1951-52	30,643	39	11,782	15	31,791	40
1952-53	25,849	36	10,253	14	32,646	45

1/ Minor uses, such as fruit used for canned segments, juice blends, conserves, government-purchased fruit, and economic abandonment, are excluded.
2/ Less than 0.5 percent.

Bureau of Agricultural Economics. Citrus Fruits - Production, Farm Disposition, Value and Utilization of Sales. Annual report. Florida Canners Association. Annual Summaries.

Frozen concentrate has taken an ever larger proportion of the total orange crop each year since its introduction in the 1945-46 season (table 2). Despite the fact that the rate of increase in the diversion of oranges to concentrate production appears to have slowed in the period 1950-53, more than 160 times more oranges were used to produce concentrate in the 1952-53 season than were used for this purpose in the 1945-46 season.

The growth in concentrate output did not cause any marked decline in the number of boxes of oranges marketed as fresh fruit. From 1945-46 through 1952-53, as noted, the total production of oranges in Florida rose from 49.8 million boxes to 72.2 million. In the same period, the volume of the crop marketed fresh declined--but merely from 30.3 million boxes to 25.8 million. The rise in frozen orange juice concentrate output came mainly out of the huge increase in the size of the Florida orange crop.

Location and Capacity of Florida Concentrate Processing Plants

Frozen orange juice concentrate is normally produced in Florida over a 6-month period commencing in mid-December and ending in mid-June. Although Florida's production area has widened in the 8-year period studied here,

operations have been carried on largely in central Florida with decidedly more plants located in Polk County than in any other single county.

During the 1949-50 season, when production of concentrate utilized almost a third of the Florida orange crop, 16 processing plants in 6 counties were in operation. 6/ The next two seasons saw 19 plants in 8 counties in production. 7/ In the 1952-53 season concentrate was produced at 21 plants in 9 counties. 8/ Another company at Frostproof was converting its hot concentrate equipment to freezing at the time this report was written, and was expected to be producing concentrate late in the 1953-54 season. Two new plants, one at Ft. Meade in Polk County and the other at Orlando in Orange County, were also expected to be in production for a part of the 1953-54 season.

Since 1949, the production area has been extended outward from Polk County--northeasterly into Seminole County, westerly into Hillsborough County, and slightly southwesterly into Manatee County. Many are of the opinion that some plants now processing single-strength juice will ultimately convert to freezing, and that the concentrate production area will continue to expand, principally to the southeast, and will eventually reach Indian River County.

In the 1952-53 season, Polk County's 10 plants accounted for 36 percent of Florida's total concentrate plant capacity. The capacity of Pasco County's single plant represented 19 percent of Florida's capacity, Orange County's 3 plants 19 percent, and Lake County's 2 plants 9 percent. The capacity of the plants in the remaining 6 counties together accounted for 17 percent of the State's total capacity. Distribution of plants, by estimated capacity for the seasons 1949-50 through 1952-53, is shown in table 3.

Effect of Private Labels and Shift in Purchases on Transportation

Such rapid change in the number, size and location of concentrate processing plants has understandably placed an ever greater demand on facilities and services for transporting the frozen product. Along with these changes, moreover, has come a great proliferation of private labels and a shift in the source of purchases by major shippers of concentrate. The former factor has affected transportation service, inasmuch as special brands must be transported to widely separated individual sales territories and warehousing centers. The latter factor has caused some dislocation among various

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6/ 9 in Polk County; 3 in Orange County; and 1 plant each in Lake, Marion, Pasco, and Pinellas counties.

7/ 9 in Polk County; 3 in Orange County; 2 in Lake County; and 1 plant each in Manatee, Marion, Pasco, Pinellas, and Seminole counties.

8/ 10 in Polk County; 3 in Orange County; 2 in Lake County; and 1 plant each in Hillsborough, Manatee, Marion, Pasco, Pinellas, and Seminole counties.

motor carriers operating under limited ICC authority. 9/ A few examples will serve to illustrate the effect of the various production and marketing factors on transportation facilities and service.

Table 3.--Distribution of Florida frozen orange juice processing plants by estimated capacity, 1949-50 - 1952-53 seasons

Estimated plant capacity	Season			
	1949-50	1950-51	1951-52	1952-53
Million gallons	No.of plants	No.of plants	No.of plants	No.of plants
.50 and under	3	3	-	1
.51 - 1.50	5	6	5	3
1.51 - 2.50	1	5	6	9
2.51 - 3.50	1	3	4	3
3.51 - 4.50	-	-	1	3
4.51 - 5.50	-	-	-	1
5.51 - 6.50	-	-	-	-
6.51 - 7.50	-	-	-	-
7.51 - 8.50	1	1	-	-
8.51 - 9.50	-	-	1	-
9.51 -10.50	-	-	-	-
10.51 -11.50	-	-	-	1
No capacity information available	5	1	2	-
Total	16	19	19	21

Computed from data in Quick Frozen Foods, issues of January 1949, January 1950, January 1951, and January 1952.

In the early days of concentrate production, virtually all of Florida's pack was marketed by three large concerns. At the end of the 1947-48 season, these concerns together marketed about 80 percent of the Florida output. But additional plants came into production, and by the end of the 1948-49 season, marketings of these three firms amounted to just under 60 percent of the pack. By 1951, increased production of other, particularly the newly-established, processors had pushed the share of the "big three" to below 50 percent of the total marketed.

9/ This aspect is discussed in more detail beginning at page 31.

Concentrate is now marketed under many brand names. Only a few of the Florida processors distribute under their own labels exclusively. Several produce principally for three large distributors. Others pack and distribute under their own labels, pack for the big concerns, and in addition, "co-pack" under the private labels of large distributors--chain stores, for example. According to the trade, private label packing is on the increase. One of the largest of the Florida producers marketed 60 percent of its output under its own labels, and also packed under 60 private labels during the 1952-53 season. Other companies also packed substantial amounts of concentrate under private labels during the 1952-53 season.

As already mentioned, shifting of purchases by major firms tends to cause some dislocation among transport media, particularly among motor carriers whose ICC operating authorities are limited. Because many processors apparently either do not wish, or are not in a position, to market under their own brands in competition with the large distributors' brands, they make the best contracts they can to dispose of their product each year. One of the largest distributors obtains its entire supply of concentrate through arrangements made each year with individual processors. Hence, it may well ship from different points each season. 10/ A moderate sized processor packed for two major distributors in the 1951-52 season, but in the 1952-53 season it marketed about 15 percent of its pack under its own label and packed most of the rest for one distributor. Another packer in the 1951-52 season sold virtually its entire pack to one distributor, and in the 1952-53 season packed only for one of the larger processor-distributors. In the 1951-52 season a small processor packed almost exclusively under its own label, but in the following season it packed only for one of the largest distributors.

DISTRIBUTION OF FROZEN ORANGE JUICE CONCENTRATE

The initial movement of Florida concentrate has never followed a set pattern. In the first few seasons, the volume produced was so small that the entire pack was moved out to consumers about as fast as it was produced. Annual production increased rapidly, but because consumer demand also increased rapidly, it was not until 1949 that production exceeded demand during the processing season. Since that time, however, the volume packed in Florida during each processing season has exceeded current demands. Consequently, it has been necessary to place some of the product in storage during the packing season.

In the face of increased production and ever-widening consuming areas, distribution patterns have necessarily been altered frequently. Although processors had only limited plant storage facilities until recently, they stored as much inventory as possible temporarily at their own plant warehouses. As these storage facilities filled up, the inventory was moved out.

10/ See, for example, report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952.

At many plants, this meant that some concentrate was moved out every few days, if not daily, during the peak of the production season in order to make room for later production. Some inventory went into temporary storage midway between production and distribution points, while some went directly from plant to distribution warehouses in consuming centers. And some was occasionally moved by such buyers as large retail food chains directly from the plants to the chain store warehouses, for delivery to their stores as needed.

The pattern of the initial movement has been very fluid. Hence, an accurate estimate cannot be made of the volume of concentrate moving into temporary storage each season, or of the amount moving direct from plant to distributors' warehouses. Nevertheless, it appears that up to the 1951-52 season, a very large proportion of the concentrate pack was moved, soon after processing, from plant storage into public zero storage warehouses located somewhere between the plants and the consuming centers. Here it remained until distributors were in a position to handle it in the usual trade channels. As a rule, however, all concentrate has been moved out of temporary storage and into trade channels by October of each year.

Storage-in-Transit

For the convenience of shippers, certain midway storage points have been designated by both the railroads and the motor carriers as "storage-in-transit" points. Under this system, some shipments on the way from plant to distribution areas are stopped in transit for temporary storage at designated points, and are then reshipped to final destination. Under the storage-in-transit plan, shipments can travel on a through freight rate rather than on a combination of the individual freight rates from plant to storage and from storage to final destination. Such transit arrangements tend to keep transportation costs below what they would be if combination freight rates were applied to each shipment placed in temporary storage.

For the transit privilege, a charge is added to the through freight rate. On truck shipments, 20 cents per 100 pounds is added; on rail, $7\frac{1}{2}$ cents. 11/ The charge accrues to the carrier handling the shipment outbound from the transit point. Transit privileges are not permitted on shipments held at transit points for more than 12 months from the date of the freight bills covering the inbound movements.

Because of its high perishability, concentrate is held in storage at a temperature of 0°F. or below. Warehouses capable of maintaining such low temperatures are generally located in urban centers. Designated in-transit storage points for truck shipments destined for the regions covered by this report (Fig. 1) are at Jacksonville, Fla.; Atlanta, Columbus, and Savannah, Ga.; Charlotte, Lexington, and Winston-Salem, N. C.; and Nashville,

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11/ Charges in effect in September 1953.

Tenn. Designated in-transit storage points for rail shipments of concentrate moving north are at Jacksonville, Fla.; Atlanta, Columbus, Macon, Savannah, and Moultrie, Ga.; Charlotte, Hendersonville, and Lexington, N. C.; Chattanooga, Memphis, and Nashville, Tenn.; Cincinnati, Ohio, and Richmond, Va.

In addition to the concentrate transported to temporary storage, a considerable volume moves direct from plants to distribution warehouses in or near consuming areas. Such direct distribution is particularly prevalent during the processing season. Nearly all of the pack, however, is eventually moved into distribution warehouses on the way to consumers.

According to the testimony of shippers at ICC hearings on motor carrier applications for operating authority, distribution methods vary widely among shippers, and even a single processor's methods may change from season to season. These differences in methods depend upon sales activity in consuming areas, the arrangements the shipper can make with distributors, and upon the availability of plant and public zero storage facilities at any given time.

In 1950, for example, a representative of a large shipper testified that, since his company's local distributors maintained no more than a month's supply of concentrate at their warehouses, his company stored regularly at several in-transit storage points, and shipped from there as required. 12/ In addition to in-transit warehousing, however, this company in 1950 was also leasing year-round storage space at such points as Jacksonville, Savannah, Atlanta, Nashville, Baltimore, and New York City. 13/ In 1951, on the other hand, a representative of the same company testified that little in-transit storage by this company was contemplated. 14/

Further, according to testimony, because jobbers and wholesalers of one of the smaller processors customarily carry a very low inventory, their frozen concentrate stock must be replenished quickly and often. 15/ Therefore, although as much as 60 percent is stored at Jacksonville, 40 percent of this company's pack moves direct to destination territory. 16/ Another packer has usually maintained no more than a 2-week supply at distribution warehouses, but meets its needs by storing in transit. 17/ Still another packer ships mostly direct to public warehouses in consuming areas in its own name, and distributors withdraw stock as needed. 18/

12/ ICC hearings on application MC-95540 (sub 175), March 30, 1950.
13/ ICC hearings on application MC-107107 (sub 18), March 22, 1950.
14/ Report of ICC examiner on application MC-25798 (sub 6), dated April 20, 1951.
15/ Report of ICC examiner on application MC-105633 (sub 10) et al, dated April 13, 1951.
16/ Report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952.
17/ ICC hearings on application MC-25798 (sub 6), dated Jan. 22, 1951.
18/ Report of ICC examiner on application MC-105813 (sub 3) et al, dated Oct. 17, 1952.

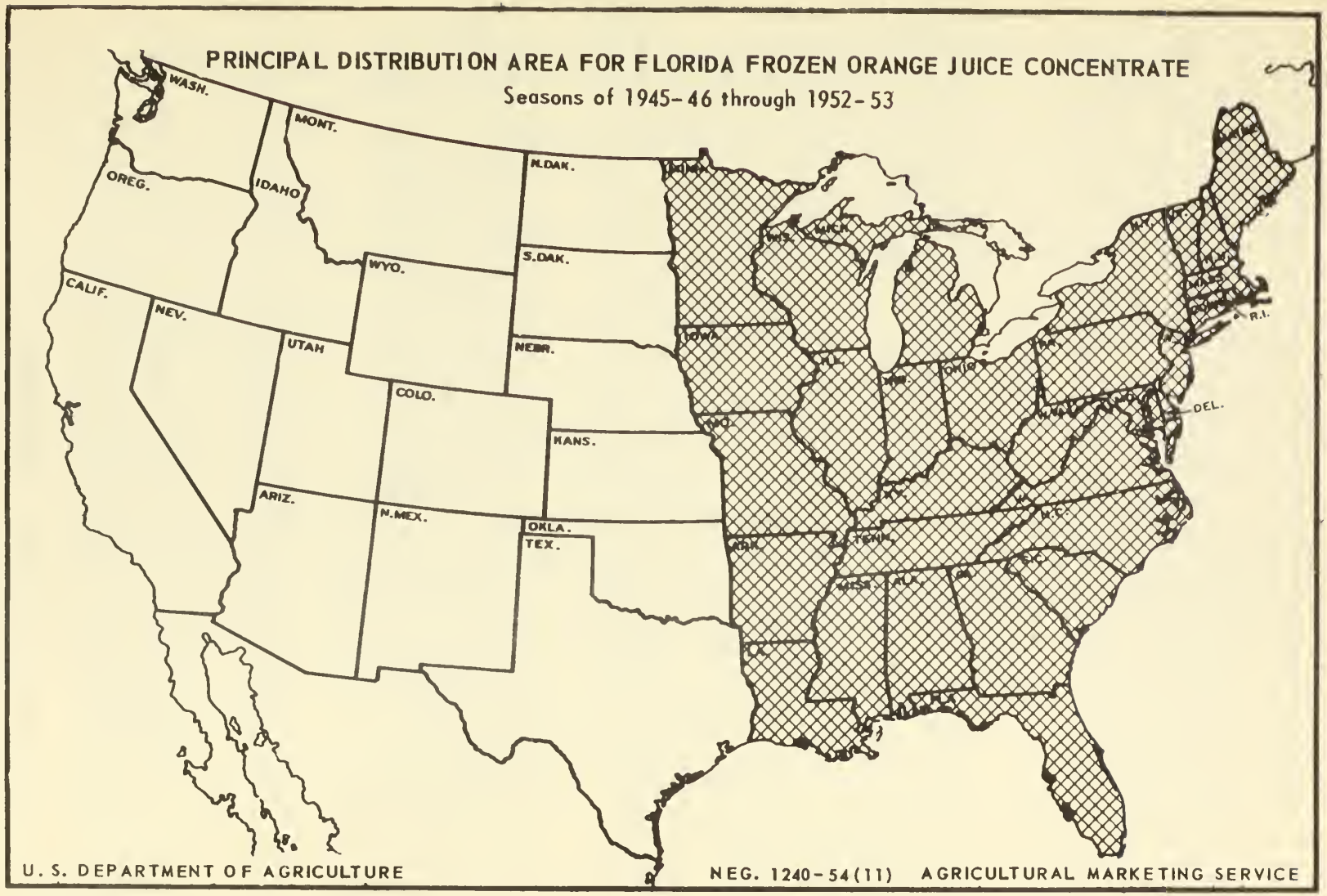
PRINCIPAL DISTRIBUTION AREA FOR FLORIDA FROZEN ORANGE JUICE CONCENTRATE
Seasons of 1945-46 through 1952-53
WASH.
MONT.
OREG.
IDAHO
N.DAK.
S.DAK.
WYO.
CALIF.
NEV.
UTAH
NEBR.
COLO.
KANS.
ARIZ.
N.MEX.
OKLA.
TEX.
IOWA
MO.
ARK.
TENN.
MISS.
ALA.
GA.
S.C.
N.C.
VA.
KY.
OHIO
PA.
N.Y.
MASS.
R.I.
DEL.
U. S. DEPARTMENT OF AGRICULTURE
NEG. 1240-54(11) AGRICULTURAL MARKETING SERVICE

Figure 1

A large Florida processing cooperative stores some production regularly at Jacksonville, but also ships direct from its plant to two distributors in each State in which it does business. 19/ Another moderate sized processor is reportedly by-passing large zero storage facilities and shipping direct to small distributing centers. 20/ But many processors undoubtedly have used or will use some public storage facilities at some time during the year, because, as a representative of one concern put it: "Producers and processors in Florida that store at points other than production points do not know from one year to the next where concentrate will be stored ... or when it will be moved." 21/

Plant Storage Increasing

Processors have long been interested in warehousing their own concentrate pack, not only to keep the product under optimum conditions, but also to avoid having to bargain for scarce zero storage space each season. Very few, however, were able until recently to warehouse much inventory at their own plants.

The record-breaking 1951-52 output of concentrate in Florida put such a strain on public freezer space that at the height of the processing season many packers were forced to go far afield to find sufficient zero storage space. One processor, in fact, was said to have had to curtail production during the 1951-52 season for lack of inventory space. 22/ This unusual warehousing pinch spurred both the packers and the public warehousemen to undertake large-scale expansion of warehouse facilities. In addition, the southeastern chapter of the National Association of Refrigerated Warehouses has worked out a plan to pool warehouse facilities over a large area to avert a repetition of the tight 1951-52 situation.

One processor at the time of this study was completing a warehouse addition at Groveland, Fla., to add storage capacity for 350,000 cases of concentrate. Another had expanded its storage space at Winter Garden, Fla., so that it could accommodate over 1 million cases. Still another had about completed at Davenport a warehouse of 500,000 case capacity, which would obviate, for the time being, the necessity for using public storage space. A large packer had a new warehouse at Dade City, Fla., capable of accommodating three-fourths of its production.

A new plant warehouse is in operation at Plant City, Fla. A citrus growers cooperative has added capacity at its Plymouth, Fla., plant for storing

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19/ Report of ICC examiner on application MC-105813 (sub 3) et al, dated Oct. 17, 1952. Op. cit.
20/ Report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952.
21/ Ibid.
22/ Quick Frozen Foods. 15(1):64. August 1952.

$1\frac{1}{2}$ million cases. Several other processors have newly-enlarged plant storage capacity at Auburndale, Florence Villa, Leesburg, and Bradenton, Fla. These new additions will bring private zero storage space in Florida to 6.5 million cubic feet.

The public warehousing industry likewise has been expanding its zero storage facilities in the Southeast and elsewhere. Although some added space has been the result of new construction, most has resulted from conversion of cooler space already in existence. Altogether, at the time of this study, the industry had or would soon have about 3.5 million cubic feet of zero storage space in Florida. 23/

Expanded plant storage will tend to limit the use of zero-temperature public warehousing space in the Southeast. Some freezer space in public warehouses, previously reserved for concentrate, was reported in 1952 to be filled with frozen poultry and with pork and beef products. 24/

Increased plant storage will also tend to reduce peak movements of concentrate from the plants, and should even the flow to market during the year. Any shift in storage or distribution practices, however, tends to be reflected back to the transportation media used to haul concentrate, particularly to the motor carriers whose ICC operating authorities may not permit them to reach plant storage points in Florida. 25/

HOW THE TRANSPORTATION NEEDS OF THE CONCENTRATE INDUSTRY HAVE BEEN MET

All Florida plants processing frozen orange juice concentrate, and most of the Florida concentrate storage points, are served by both rail and motortruck. No frozen concentrate has been transported by water for several years. 26/

Of the two railroads serving the Florida industry, the Atlantic Coast Line Railroad serves 11 plants directly, and also serves some of their Jacksonville, Fla. storage facilities. 27/ The Seaboard Air Line Railroad serves 10 plants and their Jacksonville storage warehouses. In addition, all rail in-transit points are served by one or both roads. Several motor carriers are also serving both production and storage points, although not every carrier is authorized to serve every point.

23/ Distribution Age, 52(5):25, May 1953.

24/ Quick Frozen Foods, 15(1):64, August 1952.

25/ See further discussion of this point beginning at page 31.

26/ Late in 1950 the ICC denied an application of a water carrier for temporary authority to institute Atlantic coastwise water transportation of frozen citrus concentrate. See ICC report and order in application W-1017, Dec. 1950.

27/ See shippers' statements in support of carrier application MC-107107 (sub 47), Feb. 5, 1953.

In the past decade, the railroads, whose lines have traversed concentrate production areas for many years, have added to their mechanically refrigerated hauling equipment. Motor lines likewise are currently operating more units than in the first years when only a few carriers had either the equipment or the authority to transport the frozen commodity.

Motor Carrier Service Available to Shippers

Because the concentrate output increased sharply beginning with the 1948-49 season (table 1), processors urgently appealed for enough suitable transportation equipment to move the pack. Their appeals were for trailers equipped with at least 6 inches of insulation and mechanical refrigeration which would maintain 0°F. Encouraged by the producers, many motor carriers filed application with the ICC for authority to haul the new product. Obtaining such authority is frequently expensive and time-consuming. However, because of the obviously urgent need for transportation, several applicants were granted temporary operating permits by the Commission. Subsequently, in accordance with established procedure, hearings on carrier applications for permanent authority were conducted by Commission examiners at various points within the production and distribution areas. At these hearings all interested parties--carriers and shippers alike--were given opportunity to protest or to support the various applications. A large number of such hearings was conducted throughout 1950 and 1951.

Service During 1950-51 Season

Altogether, 8 interstate trucking lines held some type of ICC authority to haul Florida frozen orange juice concentrate during the 1950-51 season. In addition, one carrier who, for several seasons, had been operating approximately 30 trailer units to move concentrate, was declared by the ICC in 1951 to have no authority for such operations. Three of the 8 carriers held permanent authority as common carriers to transport concentrate over irregular routes from various points in Florida to various destinations in the Northeastern and North Central States. Of these, two held certificates as carriers of special commodities, and one held a certificate as a carrier of general commodities. Together, the three carriers with permanent authority operated approximately 125 suitable trailer units.

In addition to the three carriers holding permanent certificates, 5 motor carriers with suitable trailer equipment held temporary permits. These 5 were allowed to operate between points in Florida and the Northeastern and North Central States as irregular route common carriers--three as haulers of special commodities, two as haulers of general commodities. One of the five also operated as a contract carrier and hauled some frozen concentrate for one of the larger shippers. As common carriers, these 5 trucking firms had approximately 150 suitable units in operation during the 1950-51 season. Although several of the five owned additional suitable units, the number they could operate while holding temporary permits was restricted in

accordance with an ICC order of March 1950. 28/ All of the five carriers, however, as well as several others who had earlier been denied temporary permits, had applied to the Commission for permanent authority to transport concentrate from Florida production or storage points to northern destinations.

Transportation furnished by these for-hire carriers was also supplemented by other truck transportation during the 1950-51 season. One of the larger processors reported that it operated several units of its own and also had some 15 suitable units under lease from a Florida trucking firm. 29/ Operation of these private and leased units by this firm was not, however, confined exclusively to movement within the Northeastern and North Central States.

In addition to the 8 certificated interstate carriers hauling concentrate from Florida to the north, 3 locally-domiciled regular route common carriers of concentrate were operating approximately 35 units over regular routes between Florida production points and Jacksonville and Atlanta. One used dry-ice trailers, the others mechanically refrigerated trailers. Some of the cargo transported by these three carriers was placed in storage at Jacksonville and Atlanta. Significant amounts, however, were moved by them to Jacksonville and Atlanta, where their loaded trailers were turned over to 3 connecting-line carriers who moved the frozen cargo on to northern destinations.

The connecting-line carriers, whose operating authorities did not permit them to reach Florida production centers, operated some 30 suitable trailer units. They were all common carriers of general freight, holding permanent certificates permitting them to operate over regular routes between Jacksonville and Atlanta and points in the Northeastern and North Central States.

Truck Service Available During the 1952-53 Season

Information as to the number of refrigerated trailer units actually available to shippers of concentrate during the 1952-53 season is not of record. Testimony of shippers and carriers in ICC hearings on applications reveals the number of units owned by the carriers. But inasmuch as no carrier hauled concentrate exclusively, the number of units owned does not necessarily indicate the number available to shippers of concentrate. 30/

28/ See discussion of this order beginning at page 27.

29/ See report of ICC examiner on application MC-95540 (sub 188), June 25, 1951.

30/ By the end of 1952, nearly all motor carriers of Florida frozen concentrate who had been granted temporary operating permits in 1950, had received some permanent operating authority from the ICC. Any temporary authority granted subsequently did not restrict the number of refrigerated trailers which could be operated.

Several carriers, however, had reported that their southbound traffic was insufficient to warrant the purchase of additional refrigerated equipment.31/

Three of the five carriers who had operated under temporary permit during the 1950-51 season had secured permanent certificates to transport concentrate from Florida to points in the North by the time the 1952-53 season had arrived. One of the five was denied a permanent certificate, and his temporary permit expired. The fifth carrier was still operating under a temporary permit in the 1952-53 season.

Added to the three which were already certificated, this brought to six in the 1952-53 season the number of interstate motor carriers holding permanent certificates permitting them to transport concentrate from certain Florida plants or storage points to certain northern destinations. They all operated as common carriers over irregular routes--five as special commodity carriers, and one as a general commodity carrier. One also had additional authority to operate as a common carrier over regular routes. One of the six had pending three additional applications for permanent authority to haul concentrate from and to points not included in his existing permanent authority, and another had one additional application pending. As a group, the six carriers owned approximately 300 refrigerated trailer units. The number regularly engaged in transporting concentrate, however, is not of record. Moreover, the business of one was in receivership, and the operations of its 50-odd units during the 1952-53 season are not known.32/ Sale of this carrier's operating rights was announced in August 1953. 33/

During a portion of the 1952-53 season, four interstate carriers held temporary authority permitting them to operate as common carriers over irregular routes and to transport concentrate between specified origins and destinations. Three were carriers of special commodities, and one was a carrier of general commodities. Because of the ICC order referred to above, restricting the number of trailer units that could be operated under temporary permit, these four carriers were limited to the use of 125 suitably refrigerated units. 34/ Three of these carriers, however, held permanent authority permitting them to operate between certain origins and destinations

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31/ According to an ICC examiner in a report on application MC-108838 (sub 166) et al., dated Nov. 7, 1952, "None of the motor carriers that have or will be granted permanent authority ... will add any large number of vehicles to their fleets unless they have an equal volume of traffic moving in the opposite direction."

32/ In a statement in support of the application of a carrier for extended operating authority, a representative of a Winter Garden processing concern noted that less truck service was available to shippers in March 1953 than at any previous time. He also pointed out that two carriers were in receivership. From this it might be inferred that the equipment of these two carriers was not employed in hauling concentrate in the 1952-53 season. ICC application MC-95540 (sub 229 TA), March 30, 1953.

33/ Transport Topics. No. 940, p. 18. August 17, 1953.

34/ See footnote 30, page 15.

not covered by their temporary permits. The fourth carrier, who had operated under a temporary permit in the 1950-51 season, was still operating under such authority in the 1952-53 season. Because this firm was also in receivership during the 1952-53 season, it is not clear whether any of its 30 trailer units were regularly employed in the movement of concentrate.

In addition to the motor carriers who hauled concentrate during the 1952-53 season, one additional interstate carrier was granted a temporary permit by the ICC on August 28, 1953. 35/ The applicant carrier owns and operates some 125 pieces of refrigerated equipment. According to information in his application, he could supply 12 to 15 trailers regularly for runs from Florida, and more during the peak concentrate processing season if warranted. In August 1953, a second carrier also applied to the Commission for permanent authority to transport frozen concentrate from Florida. 36/ The application was still pending 16 months later.

Neither the three locally-domiciled regular route common carriers nor the connecting line carriers apparently added to their refrigerated equipment between 1950 and 1953. One connecting line carrier discontinued service to Atlanta during the 1952-53 season.

Two processors--one large and one small--shipped concentrate both in their own vehicles and in others operated under lease during the 1952-53 season, in addition to shipping in for-hire vehicles. The large processor operated some of its own vehicles and also some 90 tractor-trailer and truck units leased from a Florida firm. 37/ The other used four leased trailers to ship concentrate nationwide. No estimate, however, can be made of the number of units used by either firm to move concentrate from Florida to destinations in the regions covered by this report.

Available Rail Service

Rail refrigerator cars suitable for moving frozen concentrate from Florida are supplied, as required, to contracting railroads by the Fruit Growers Express Company 38/ and associates 39/. During the 1950-51 season, this refrigerator carline had 65 mechanically refrigerated cars in service. Not all, of course, were used exclusively for shipping frozen concentrate. During the same season, it had 101 heavily insulated mechanically refrigerated cars on order. 40/

35/ ICC docket MC-75185 (sub 201 TA).
36/ ICC docket MC-64110 (sub 13).
37/ Quick Frozen Foods. 15(4):67. Nov. 1952.
38/ A railroad-owned private refrigerator carline owned jointly by the Atlantic Coast Line; Seaboard Air Line; Baltimore and Ohio; New York, New Haven and Hartford; and other railroad companies.
39/ Burlington Refrigerator Express Company owned by the Chicago, Burlington and Quincy Railroad; and the Western Fruit Express Company, owned by the Great Northern Railway.
40/ According to information received from the Interstate Commerce Commission.

By the time the 1952-53 season pack was ready to move, the Fruit Growers Express Company had 165 mechanical refrigerator cars in service and had placed orders for 50 additional cars. 41/ The majority of the cars in use and on order were diesel-powered. 42/ This first wide-scale introduction of mechanically refrigerated cars was induced by the railroads' desire to get concentrate traffic.

Equipment Used to Transport Concentrate

Refrigerated Railroad Equipment

In the early days of the frozen food industry, the railroads transported frozen foods in rail cars having up to 4½ inches of insulation in floors, ceilings, and walls, with end bunkers filled with coarse ice and 30 percent salt. Because these cars were no different from those used to haul fresh perishables, it soon became apparent that they could not maintain the temperatures required by shippers. Consequently, more heavily insulated cars with end or overhead bunkers were developed. These insulated cars have floor racks and side strips to promote air circulation. Some also have fans for this purpose.

The overhead bunker cars have a series of hatches on the top of the car which are filled with crushed ice plus 30 percent salt. Cooled air, flowing down through ducts in the side walls, refrigerates the cargo. Although not many overhead bunker cars have been built, they have apparently been reasonably satisfactory for transporting frozen foods, at least over moderate distances. Many more of the heavily-insulated end bunker type have been available, although most shippers of frozen foods do not consider them satisfactory except for short runs or in winter.

The ice-and-salt method of cooling has several limitations aside from temperature difficulties. Leaking brine from the cars causes extensive and costly damage to railroad right-of-way and reduces the life of cars to about 15 years. 43/ Cost of icing and time lost in transit are also important limitations. Cars must be precooled for as much as 24 hours before loading. They are then iced and salted, an average car requiring initially about 10,000 pounds of wet ice and 3,000 pounds of salt. Re-icing is required at intervals en route, depending upon the cargo, weather, and length of haul.

41/ Statement of representative of FGE in hearings on application MC-108838 (sub 166) June 1952.

42/ Memorandum report of meeting held in Chicago, Ill. Nov. 21, 1952, by special committee of Florida frozen citrus concentrate shippers and officials of railroads and carlines re: the need for mechanically equipped cars to transport frozen citrus concentrate. Prepared by Gordon Stedman, Secretary-Manager, Florida Growers and Shippers League, Orlando, Fla.

43/ Ibid.

Mechanical refrigeration, now in use on cars of the Fruit Growers Express Company and other refrigerator carlines, was developed as the result of long experimentation. In 1931, the Fruit Growers Express Company designed and operated the first successful mechanical refrigeration system used on freight cars. Many changes in car design and refrigeration equipment were necessary, however, before the mechanically refrigerated, heavily insulated cars of today, capable of maintaining zero temperatures even in warm weather, were available for use.

Two types of mechanical refrigerating units have been developed for use on railroad cars. One is powered by a diesel engine and the other by a gasoline engine (Fig. 2). 44/ The diesel unit is powered by a 34-horsepower diesel engine, which drives an alternating current generator, which in turn runs the power unit and the air circulating fans. In operation, the diesel engine runs continuously. Each car carries a minimum 320-gallon supply of fuel oil in tanks beneath the car. The refrigerating unit can be connected to an outside electrical power source for standby operation when the car is on sidings. Except for the fuel tanks beneath the car, all refrigerating and power equipment is in the machine compartment at one end of the car. Cooling coils and blower fans are on top of the machine compartment, in the best position to force air out into the car above the cargo. Side wall and floor slats are placed on the inside of the car, thereby spacing cargo away from the sides, ends, top, and bottom, to allow maximum air circulation. Freon-12 is used as the refrigerant.

Two complete gasoline refrigerating units are installed in each car. Each unit consists of a 28-horsepower water-cooled gasoline engine, 6-cylinder compressor, cooling coil, air circulating fan and controls. Chilled air is blown from the refrigerating units to the car loading space through a duct in the evaporator compartment. After absorbing heat, the air is drawn back for rechilling and recirculation. Two fuel tanks, located beneath the car, supply the engines. The units may be operated singly or in unison, depending upon the refrigeration load placed upon the system. The system is equipped to maintain temperatures ranging from 0 degrees to plus 70 degrees F. Freon-12 is used as the refrigerant.

Advantages of mechanical refrigerator cars over those using ice and salt are numerous. According to an official of the refrigerator car lines, 45/ a heavily insulated 50-foot car equipped with a mechanical refrigerating unit is 7.5 tons lighter than a 50-foot overhead bunker car using ice and salt for refrigeration. This same official reported that cars equipped with mechanical refrigerating units have approximately 20 percent greater lading space than do end bunker cars. Although carline officials expect the use

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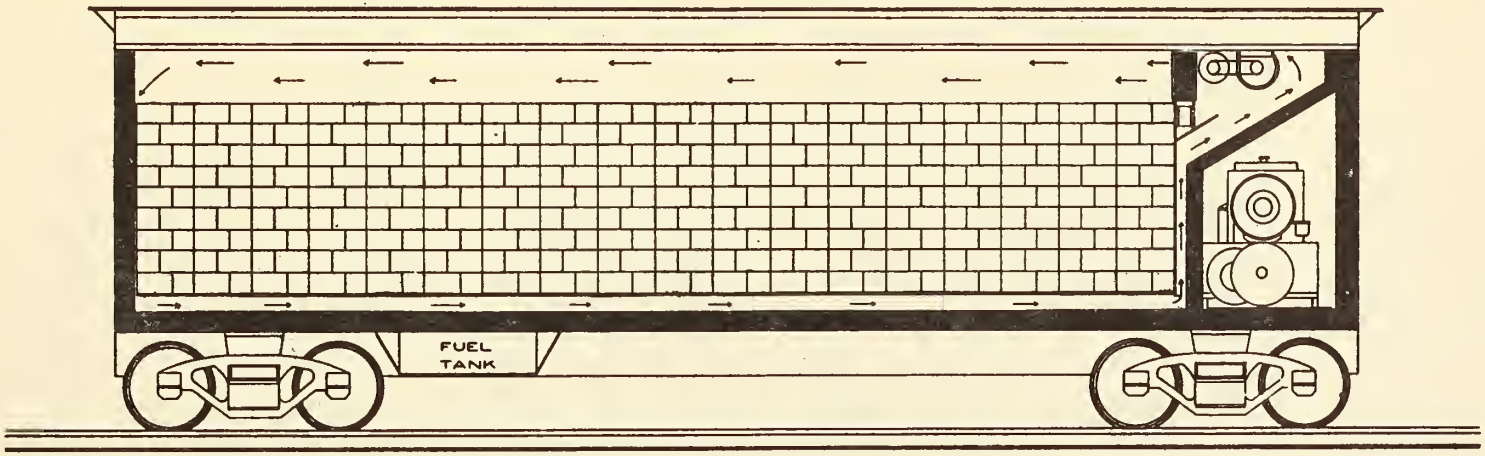
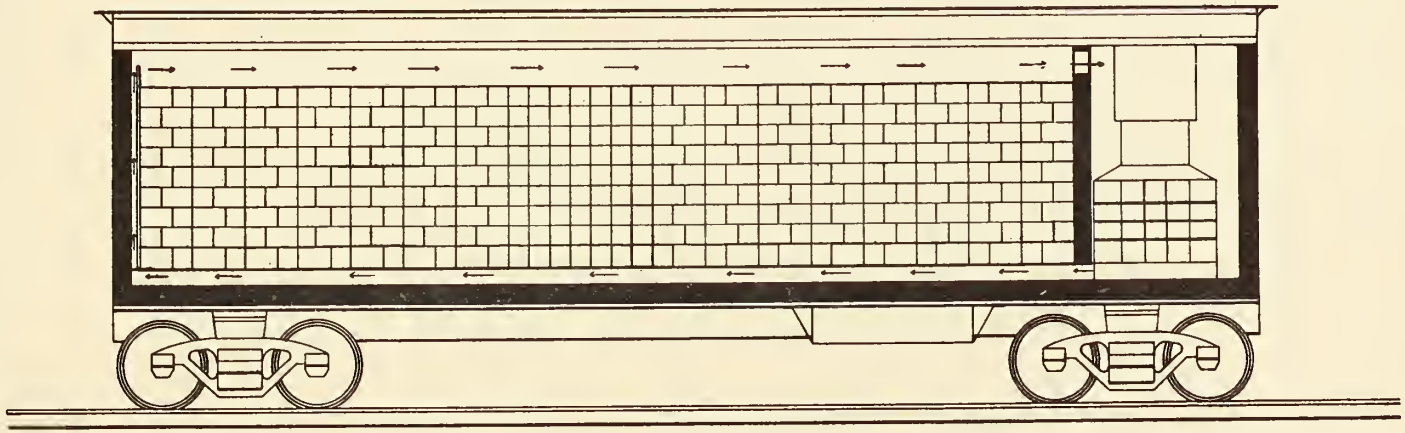
44/ Because of possible fire hazard, some railroads will not permit gasoline refrigerating units to be used on cars operated over their lines.

45/ Memorandum report of meeting held in Chicago Nov. 21, 1952, by special committee of Florida frozen citrus concentrate shippers and others. Op. cit.

TYPES OF MECHANICAL REFRIGERATING UNITS USED ON RAIL CARS



Refrigerating unit powered by a diesel engine.



Two refrigerating units powered by separate gasoline engines.

U. S. DEPARTMENT OF AGRICULTURE NEG. 1241-54(11) AGRICULTURAL MARKETING SERVICE

Figure 2

of mechanical cars to result in savings from reduction of transit time, reduction of claims for spoilage, and longer life of cars and railroad right-of-way, they admit that such savings "are too far in the future to be fully measured today." 46/

The original cost of the mechanical refrigerator cars is relatively high. New, all-steel 50-foot cars equipped with mechanical refrigeration systems and 6 inches or more of insulation are reported to cost in the neighborhood of $20,000. 47/

Refrigerated Trucking Equipment

In the very early days of the frozen-food industry, truck hauls were relatively short. Almost any type of truck was, therefore, used to transport frozen products, and any refrigeration provided came from a barrel or two of wet ice or wet ice and salt carried along with the load. Such primitive refrigeration was often far from satisfactory. But as hauling distances and loads increased, and as the tractor-trailer combinations came into general use, trailers were provided with some insulation--2 to 3 inches as a rule--and were cooled with dry ice placed either on top of the load or in bunkers inside the vehicle. While this technique appeared to be a big improvement over earlier attempts at refrigeration, it still did not protect loads adequately on long hauls or in warm weather. Dry ice was not generally available, and delays in transit often resulted in deterioration of the cargo. Moreover, heat reflected from the road penetrated the relatively light trailer insulation.

Refrigerated semitrailers used today to haul frozen concentrate from Florida are lighter in weight, yet able to accommodate larger payloads than their predecessors. They are generally 30 to 35 feet in length with heavy-duty tandem axles. Bodies are of aluminum or stainless steel, and are protected all around with 6 inches or more of insulation. A few have side and floor racks to permit air circulation. Most, however, are equipped with wood strips about 1-1/2 inches wide and 3/4 inches thick, spaced about 1 inch apart, running the length of the trailer. Vertical wall strips 3/8 inches by 2 inches, spaced about 6 inches apart, are usual.

Several types of mechanical refrigerating units are used in the trailers hauling concentrate (Fig. 3). 48/ All operate on much the same principle, however. They are factory-packaged, designed expressly for installation in

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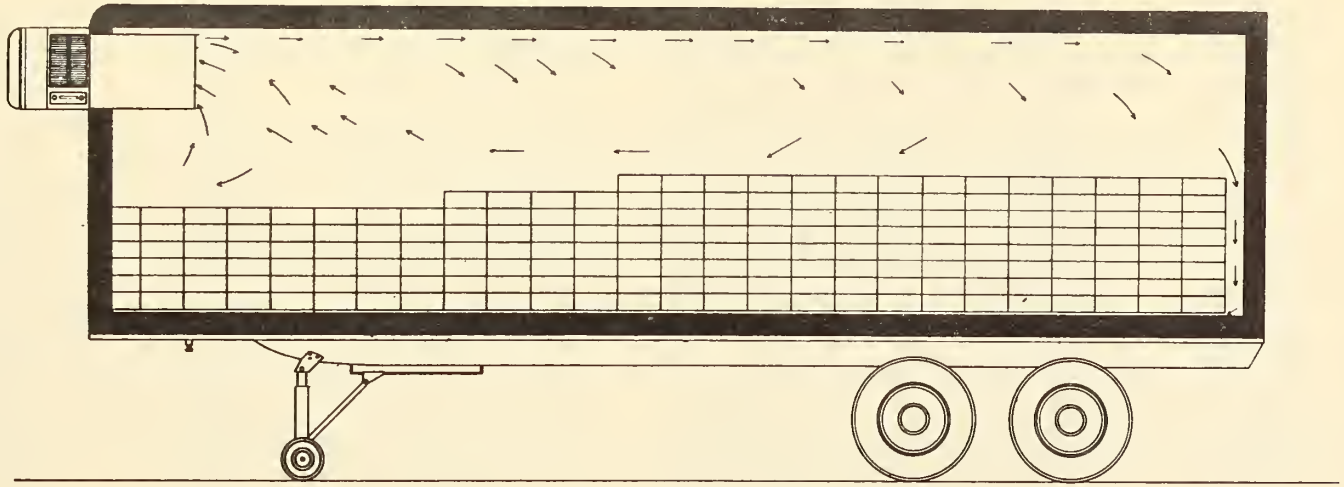
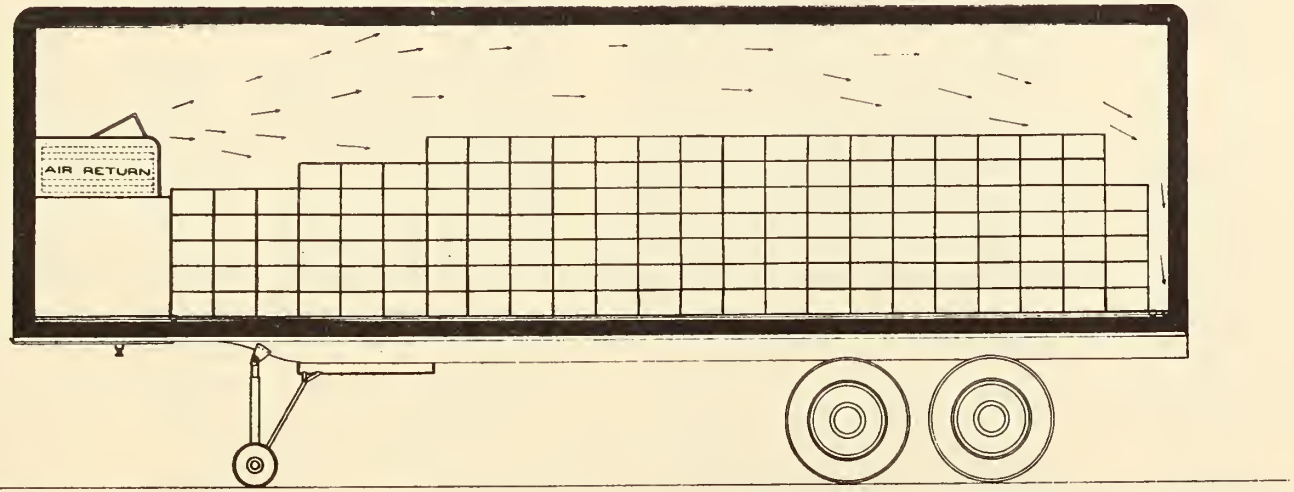
46/ Ibid.
47/ Information from Fruit Growers Express Company, June 1954.
48/ Figures 2 and 3 show two types of refrigerating units used by the railroads and the motor carriers. They have been selected to give the reader a graphic idea of the general nature of the equipment. Various other types of systems also are in use. The Department of Agriculture does not approve or disapprove the use of any given type of equipment, whether shown or not shown in this report.

TYPES OF MECHANICAL REFRIGERATING UNITS USED ON MOTORTRUCK TRAILERS





U. S. DEPARTMENT OF AGRICULTURE NEG. 1242-54(11) AGRICULTURAL MARKETING SERVICE

Figure 3

insulated trucks and trailers, and are powered by a self-contained 4-cylinder automotive-type gasoline engine connected to a large-capacity 6-cylinder compressor. No connection to any other power source is required. Many of the heavy-duty type both cool and heat, so that an even temperature can be maintained in the vehicle regardless of the outside temperature. The larger units are capable of maintaining a constant temperature of 0°F. or lower.

All parts of the refrigerating unit are housed in a single frame constructed to withstand stresses of road operations. The front section of the unit contains the engine, the compressor, the condenser, and the automatic controls. The rear section, which is inserted in the front of the trailer, contains the cooling coil and the blower. Refrigeration is accomplished by forced convection--air is drawn from the trailer through the cooling coil, where heat is removed. The cooled air is then blown back into the trailer and over the cargo. The air gradually moves downward and is again drawn back through the cooling coil. Operation of the units is fully automatic so far as temperature maintenance is concerned. The operator adjusts the thermostat to the temperature desired. The engine stops automatically when the desired temperature is reached, and starts again when the temperature rises.

The cost of an adequately refrigerated and insulated semitrailer is substantial. It depends upon the make, the construction, and the number of units purchased at one time. At the time this study was made, a 30-foot stainless steel or aluminum tandem-axle semitrailer unit, equipped with heavy-duty mechanical refrigeration and 6 inches of insulation, cost the purchaser upwards of $10,000. A complete hauling unit--power unit and semitrailer--cost $18,000 to $20,000, again depending upon the make and other factors. 49/ If equipped with meat racks or rails, the cost of suitable semitrailers was up to $800 higher.

Ownership and Operation of Hauling Equipment

Ownership and operation of railroad refrigerator cars moving Florida frozen concentrate from production or storage points present no unusual problems. Ownership and operation of motor carrier equipment, on the other hand, tend to be somewhat more complex. Each operator may carry on his business in a manner differing significantly from that of his competitors.

Railroad Refrigerator Car Ownership and Operation

Railroad refrigerator car equipment available to Florida shippers of concentrate is owned by the Fruit Growers Express Company and associates, and is furnished to the railroads handling concentrate. The Atlantic Coast Line Railroad and the Seaboard Air Line Railroad, the two roads initiating the hauls from Florida, transport the frozen product in refrigerator cars over their own lines to the greatest possible extent. If their facilities

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49/ For some earlier data on prices of equipment, see carrier testimony in ICC hearings on applications MC-107515 (sub 10), July 31, 1950; MC-25798 (sub 6), Jan. 22, 1951; and MC-105633 (sub 10), May 1, 1950.

do not extend to the destination points of the shipments, the roads transfer the loaded cars to connecting rail lines at railroad junction points, and the cars are moved on to destination. Several transfers, of course, may be involved before the cars reach their ultimate destinations.

Motor Carrier Equipment Ownership and Operation

Few of the interstate motor carriers hauling concentrate from Florida production or storage points own all of the equipment they operate. Although practices vary widely among carriers, it is customary for them to own some tractor units (power units), which are driven by company employees. Most tractors, however, are leased from others, usually on a long-term basis, and are driven by their owners. On the other hand, it is customary for interstate truckers to own the greater proportion of the refrigerated trailer units they use regularly to haul concentrate. Here again, however, practices of truckers differ.

Some carriers regularly lease both tractors and trailers from others on a long-term basis; others spot- or trip-lease only as needed. And some operate both long-term leased and trip-leased equipment. Five of seven major interstate carriers transporting concentrate in the 1952-53 season reported, for example, that they operated some leased trailers during recent years. The proportion of their trailer fleets that was leased from others varied from two-thirds for a carrier operating only 15 units in all, to one-fifth for a carrier operating more than 50 refrigerated trailers regularly on runs from Florida. Although most carriers lease from others the greater number of their tractor power units, all carriers have a few standby tractors of their own. And one of the largest of the interstate carriers reported in 1952 that he had 40 light diesel tractors on order to replace owner-driven vehicles. 50/

Arrangements made by the carriers with lessors of equipment are individual in nature. Vehicles leased for long periods are normally considered to be part of the operator's own fleet, although occasionally arrangements with lessors are somewhat curious. One carrier, for example, reported in 1951 51/ that owners of the vehicles he employed under long-term lease to haul concentrate from storage points outside of the Florida production area were "on their own" when they completed their deliveries in the North. He allowed them to lease themselves out on southbound hauls, but if they dead-headed back to Florida, he did not compensate them for the return trip. He could, however, compel them to return empty if he had northbound cargo ready to go out. This same carrier moves all the frozen concentrate cargo dispatched through his Florida office, located in the production area, in spot-leased equipment only. 52/ Another carrier, who regularly leased equipment

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50/ Report of ICC examiner on application MC-108838 (sub 166) et al.Op.cit.
51/ ICC hearings on application MC-25798 (sub 6), Jan. 22, 1951. Op.cit.
52/ ICC examiner's report on application MC-105813 (sub 3) et al dated Oct. 17, 1952. Op. cit.

from others to supplement his own, eventually found himself in the truck-brokerage business, supplying vehicles to others on a trip-lease basis. 53/

It might appear that operators with only temporary operating authorities would tend to lease rather than to own refrigerated equipment, pending grant of permanent authority, and conversely, that operators with permanent authority would own rather than lease. It might also be expected that the fleets of the general commodity carriers would contain few refrigerated trailers, and hence that they might lease more often than would special or refrigerated commodity carriers. The record of testimony before the ICC in hearings on applications shows, however, that, in proportion to their number of owned vehicles, special commodity carriers tend to lease refrigerated trailers more often than do general commodity carriers who have hauled concentrate for some years. The largest of the general commodity carriers hauling concentrate does very little leasing, although he reports that his most important traffic is Florida frozen orange juice concentrate. 54/ Nor is there evidence to show that carriers hauling under temporary authority operated more leased than owned equipment after the Commission's order restricting the number of units went into effect in 1950.

Back hauls of cargo provide motor carriers with revenue which would otherwise have to be covered by means of higher charges on one-way traffic. Consequently, carriers hauling frozen concentrate from Florida to points in the Northeastern and North Central States are eager to secure payloads on return trips. Not all the carriers delivering concentrate to northern destinations have authority for return hauls. Moreover, motor traffic northbound out of Florida, particularly that traffic requiring the use of refrigerated equipment, is considerably heavier than southbound traffic, especially during the winter. Thus, many carriers follow the practice of leasing their equipment out when possible to other carriers for single southbound trips, rather than returning empty. Frequently, of course, the carriers are able to lease their equipment to others for only part of the return trip. And on many occasions, in order to get a return load, carriers find it necessary to carry dry freight (unrefrigerated cargo). But most operators prefer short hauls, partial loads, and dry freight cargoes to deadheading back from the North.

Longer and faster motortruck movement of frozen orange juice concentrate from Florida to northern points is possible in part because many motor carriers hauling concentrate interline their trailers with other carriers whose operating authorities allow them to reach destinations which the initiating carrier cannot reach on single-line hauls. Such a practice, by widening the area of operations of individual carriers beyond the often narrow confines of their own operating authorities, extends to shippers the many advantages of through truck service.

53/ ICC hearings on application MC-107107 (sub 18), March 22, 1950. Op.cit.
54/ ICC hearings on application MC-25798 (sub 6), Jan. 22, 1951. Op. cit.

The interlining procedure followed by the truckers is similar to that used by the railroads in routing cars over the lines of connecting railroads. Power units of the connecting motor carriers are attached to the loaded trailers received from the originating carriers, and the trailers are moved to destination under the authorities of the connecting carriers. Although 2-line hauls are usual, a few instances of 3- and 4-line hauls are of record, depending upon the destination to which the concentrate cargo is consigned, and the time of year it moves. No physical interchange of cargo from one trailer to another is permitted by the shippers of concentrate. When an interchange of equipment is effected, the connecting line carrier receiving the loaded trailer gives an empty trailer in exchange. The exchanged vehicle is not always a refrigerated unit.

Compensation to connecting line carriers who interline equipment is arranged by the participating carriers. It may be on a flat fee, a percentage of rates or revenue, or other basis.

PRINCIPAL COMPETITIVE PROBLEMS OF DUAL TRANSPORTATION SERVICE

The rapid increase in the production of Florida concentrate, and the rapid widening of both production and distribution areas, following the initial season of 1945-46, have been described. Scarcity of adequate transportation facilities has also been pointed out.

During the first heavy concentrate production season--1948-49--Florida shippers became alarmed as mounting supplies of concentrate piled up at the plants. Because, in general, the railroads had not provided any large number of suitable refrigerator cars, shippers encouraged motor carriers to apply to the ICC for authority to transport concentrate to northern destinations.

Subsequently, many motor carriers, few of whom had ever before carried frozen foods, sought ICC authority to transport frozen concentrate from Florida, while several certificated carriers sought to extend their existing operating rights so that they might serve the ever-widening concentrate marketing areas. As a result, the ICC was suddenly confronted with many carrier requests for certification--requests that were strongly supported by the processing industry. The Commission thereupon conducted numerous hearings in an effort to evaluate motor carrier requests and to appraise the transportation needs of the industry. These needs appeared great enough to the Commission to warrant the grant of temporary operating authority to several truck lines. 55/ In anticipation of certification, several of the carriers made substantial investment in heavy-duty equipment and began actively soliciting business from shippers. Keen competion for traffic was not long in developing.

55/ A 1940 amendment to the Interstate Commerce Act permits the ICC in its discretion to authorize transportation in "emergency conditions" when there is no available carrier service to meet the transportation condition existing.

The railroads up to this time had hauled the greater proportion of the frozen concentrate from Florida. When the ICC began granting temporary authorities to truckers, however, and rail tonnages began to fall off, the railroads immediately protested. Their action precipitated a sharp and continuing controversy between the railroads and the motortruck lines.

On March 9, 1950, the ICC issued an order restricting operations of motor carriers holding temporary authority to transport frozen citrus juice concentrate from Florida to points in the South and in Official Territory.56/ This order followed a conference in Washington, D. C., among members of the ICC, the U. S. Department of Agriculture, the affected railroads, the refrigerated motortruck lines, shippers, and others. With regard to delivery by truck in those areas, the order stated:

> "Service is not authorized to any consignee, warehouse, or storage facility located on a rail siding and having capacity for handling 36,000 pounds or more of frozen citrus juice concentrates."

According to the Commission, the restriction was placed on motor carriers operating under temporary authority so that truck service would not be confined to points at which there were large refrigerated storage warehouses, and so that available trucks would be used to effect delivery of frozen concentrate to smaller points in the South and in Official Territory.

Immediate protest was made not only by the affected motor carriers, but by citrus growers and processors of the frozen concentrate as well. The order had the effect, they said, of depriving processors of the use of more than 200 refrigerated trucks which had been operating under temporary ICC authority. Producers generally were of the opinion that the restriction placed them in a serious situation. Acceptable rail refrigerator cars were not available in large enough supply to handle their product promptly, they said, particularly in view of increasing production and widening distribution. It was further maintained by producers that the order precluded the use of trucks, which could hold the necessary pre-storage temperatures, forcing resort to rail equipment which was deemed incapable of safeguarding the product. Truckers testified that they were being denied a fair share of the available hauling business. The railroads contended that they could handle the concentrate transportation, and that the grant of temporary authorities to truckers was unnecessary.

Reversal of its March 9 order was subsequently announced by the ICC on March 23, 1950. A substitute order was issued applying to all irregular route

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56/ With minor exceptions, Official Territory includes the area east of the Mississippi River and north of the Ohio River.

carriers of frozen citrus concentrate who had applied for permanent authority, but who at the time were operating under temporary permits. The new order 57/ read as follows:

> "Service hereunder shall be restricted to the use of equipment using heavy duty low temperature mechanical refrigeration and with not less than 6 inches of insulation, and to trailers which have been certified to the Commission and identified by company numbers or factory serial numbers as being owned, operated, or controlled by the carrier on the date of this order, or to trailers which the Commission may approve as permanent substitutes therefor."

This order had the effect of "freezing" the number of available hauling units. It was to remain in effect until the Commission had an opportunity to investigate the situation and to decide whether to make the temporary authorities permanent.

Competition, both between rail and motor carriers and among motor carriers themselves, has become increasingly keen, particularly since the Commission orders of 1950. Percentagewise, the motor carriers are losing ground to the railroads in the sharp competitive battle for this important traffic. Many factors have been responsible for this trend. The relative importance of these factors varies, depending upon whether they are viewed from the standpoint of a carrier or a shipper. A study of the testimony of all interested parties in hearings before the ICC will give considerable insight into the problems faced by both carriers and shippers of concentrate, including factors which some carriers believe have made them less able to compete for available traffic. 58/

57/ The substitute order was not limited to carriers operating in Southern and Official Territory only, but applied to all carriers of frozen concentrate operating under temporary permits.

58/ The hearings were on petitions of truck operators for operating authority or for improvement in the authority already held. The petitions came from numerous trucking firms, with highly diverse problems. Hence the truckers' testimony presents a large and complex pattern.

Only two railroads originate concentrate from Florida production and storage points. The railroad view of the truckers' petitions thus came from but two sources, and usually as joint testimony on behalf of both roads. Hence, what the railroads said can be presented in considerably briefer compass than can the views of the truckers.

The shippers of concentrate are numerous, but their problems tend to be less diverse than those of the motor carriers. Moreover, in the hearings, their views were presented partly through the Florida Growers and Shippers League. Hence, shippers' testimony--although it requires more space than that of the railroads--can be compressed into a shorter story than can that of the truckers.

The discussion to follow, based in part upon information from these hearings, attempts to focus attention in turn on the problems of the motor carriers, the rail carriers, and the shippers of Florida frozen orange juice concentrate. Brief as it is, the account outlines the major competitive problems occasioned by the rapid growth of the specialized concentrate industry.

Problems of the Motor Carriers

During the eight years covered by this report, the problems about which the motor carriers of concentrate have chiefly complained have been those attributed by them to Federal and State regulation of their hauling operations and to competition for the available traffic. Although the Interstate Commerce Act's motor carrier title exempts the trucking of agricultural commodities from Federal control over rates and operating authority, 59/ the Interstate Commerce Commission has thus far not regarded frozen orange juice concentrate as an agricultural commodity within the meaning of the exemption. Hence the ICC has, to date, applied such control to the interstate trucking of concentrate.

Effect of Federal Regulation

ICC regulation of the motor carriers transporting Florida frozen orange juice concentrate has brought complaints from both carriers and shippers. Although various phases of regulation appear to affect individual carriers and individual shippers in varying degree, the most frequent complaints have ascribed to the Commission (1) delays in granting permanent operating certificates, (2) failure to grant authority with broadly enough defined areas of origin and destination, and (3) failure to grant sufficient authority to enable carriers to make return hauls.

The Problem of Obtaining Certification

It will be recalled that a Commission order of March 23, 1950 prohibited those motor carriers who held only temporary operating authority for hauling concentrate from increasing by purchase or lease the number of units beyond the number under their control on that date. Nevertheless, in anticipation of the early removal of the ban on expansion of facilities for concentrate hauling, some of the carriers who were also handling other frozen foods increased the size of their fleets significantly. Nearly all of them discovered, however, that their temporary rights were not to be easily or quickly converted to permanent rights. Several, as a matter of fact, operated for several years under temporary permits.

In hearings on applications, many motor carriers pointed out how the long waits for certification affected their businesses. One carrier, for example, testified that his 44 hauling units were not fully utilized because

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59/ 49 U. S. Code 303(b)(6).

he could serve only 16 destinations under his existing temporary authority. He testified also that although he had 10 additional units on order, he hesitated to take delivery because of the Commission's delay in reaching a decision on his pending applications. 60/

Under the certification procedure followed by the ICC, each carrier seeking authority to haul concentrate is given an opportunity to testify in support of his own application. Shippers may also testify in support of his application. Furthermore, competing carriers already operating in the area which a given carrier wishes to serve may testify concerning matters related to the application--for example, as to the need for service in the area. And finally, the applicant carrier as well as competing carriers are permitted to file exceptions to the recommendations made to the Commission by the examiner who conducted the hearings. Frequently the exceptions are of such nature that additional hearings are deemed advisable to get all the facts for consideration by the Commission.

The Problem of Obtaining Sufficiently Broad Operating Authority

Carriers generally have been concerned because they do not have sufficiently broad operating authority to reach the ever-expanding production, storage, and consuming areas. At the time this report was being written, only one motor carrier was able to reach all concentrate production and storage points in Florida. It was able to do this by "tacking"--or combining--several operating authorities.

This issue of the scope of authorities is not one of recent origin, but rather has been troublesome to both shippers and carriers for several years. As early as January 1950, representatives of the frozen concentrate industry met with ICC commissioners, and submitted a memorandum outlining in some detail what they felt were the transportation needs of the industry. In that memorandum the industry said:

> "The Florida citrus concentrate industry takes the position that in order to provide immediately safe and adequate transportation, temporary motor carrier authority be granted on a State-wide basis, both as to origin and to destination territory...."

Processors expected even at this time that the growth of the concentrate industry would be rapid. In order, therefore, that carriers might not have to return to the Commission each time a new processing plant came into production or new consuming markets opened up, the grant of Statewide origin and destination territory authority was recommended by shippers as one way of taking care of the industry's future needs automatically.

Several motor carriers, granted permanent certificates after operating for a time under temporary permits, found that the destination areas covered

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60/ ICC docket re: application MC-107107(sub 47 TA), March 1953.

by their permanent grants were less extensive than those covered by their temporary grants. Upon receiving their certificates, most of them reapplied to the Commission for authority to serve the "lost" destinations. Not all of these requests have been granted.

As a result of the industry's representations, the origin area granted under temporary authorities was, for most motor carriers, "Lakeland and 100 miles radius thereof." Permanent authority subsequently granted by the Commission has, however, been narrowed considerably by its practice of listing origins by specific sites. For a time, such limited origin areas appeared to allow carriers sufficient leeway to pick up at most Florida production and storage points. New plant construction in dispersed locations soon raised the problem anew. Further, both private and public zero storage facilities in Florida were shown to be increasing.

As already noted, many shippers, particularly those without processing facilities of their own, obtain supplies of concentrate from other producers, and often change their sources of supply from year to year. Frequently, too, for various reasons, processors find it necessary to store some product in storage facilities other than their own. Carriers must thus pick up or drop off cargo at several points in the course of serving a single shipper. Limitation of their right to stop in transit to load or unload has been considered by carriers to be an unnecessary limitation on their ability to compete for business, particularly since several shippers report that up to one-third of their shipments are stopped in transit. 61/

The disparity between origin points granted and those requested, has resulted largely from the considerable lapse of time frequently occurring between the hearings on applications and the date of the Commission's decisions respecting them. Witnesses testifying at hearings gave information about the location of plants then in existence, although additional plants might well have been under construction or even in production by the time Commission decisions were announced. For these and other reasons, both motor carriers and shippers have sought changes in the Commission's practice of listing, by specific sites, the origin and destination points granted each carrier. Representatives of both groups have testified many times as to the need for broader grants.

The traffic manager for a large processor testified, for example, that his company received orders from destination points not covered by the ICC operating authority of the refrigerated motor carriers customarily used by it. When the processor contacted carriers having ICC authority to haul concentrate to those points, it was found that none had equipment which the processor thought suitable. 62/

61/ See, for example, report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952. Op. cit.

62/ Report of ICC examiner on application MC-105813 (sub 3) et al, dated Jan. 4, 1952.

The assistant traffic manager for one distributor said: "We need the flexibility of origin and destination that statewide authority gives so as not to be hampered in marketing our product. ... Sometimes, when we get a new market or a new processor, we find that a trucker with authority to go there doesn't have equipment available, and that the trucker with equipment doesn't have the specific authority." 63/ He also pointed cut that his company had only 19 concentrate markets in 1950 as against 65 at the time of the hearing, and predicted a 25 percent increase in markets by the start of the 1952-53 season.

A processor's traffic manager testified to the need for tying in Statewide origin authority with industrial expansion. He said: "The tremendous growth of the Florida citrus concentrate industry has spread the various plants producing this product throughout most of central Florida. The conversion of single-strength canning plants is a main cause for wider origin points. Storage facilities in Jacksonville have been utilized during the past season, but the origin points on many of the applications from Jacksonville have been omitted. 64/ This leaves only a few carriers available to transport frozen orange concentrate from Jacksonville, and many destinations cannot be served when shipments originate there." 65/

Another processor's representative testified that his firm's new warehouse at Frostproof could, at the time of the hearings, be reached by only one irregular route common carrier having temporary authority to pick up at that point and deliver to the Eastern Seaboard. 66/

Still another processor urged that the Commission grant Statewide origin authority to motor carriers. 67/ This company processes at Groveland and stores at Jacksonville, Plymouth, and Auburndale, but contracts with other processors as the need arises.

Representatives of one of the largest packers of concentrate likewise testified to the need for granting carriers Statewide origin and destination authority, particularly since, they said, "Producers and processors in Florida that store at points other than production points do not know from one year to the next where concentrate will be stored, whether it will be transported by truck or rail, or when it will be moved." 68/

63/ Ibid.

64/ That is, Jacksonville as a point of origin has been omitted from recommendations of ICC examiners.

65/ ICC examiner's report on application MC-105813 (sub 3) et al, dated Oct. 17, 1952. Op. cit.

66/ Ibid.

67/ ICC hearings on application MC-108838 (sub 166). Op. cit.

68/ Report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952. Op. cit.

The Florida Citrus Exchange stores in Jacksonville, and many of its shipments are destined for points in western New York State. Only one carrier, they testified, had authority to serve this destination territory, but he could not serve Jacksonville. 69/

A representative of the Florida Growers and Shippers League spoke for many shippers when he testified that "... motor carriers should have authority to serve all points in Florida because there is a need for motor carriers to pick up shipments at one point with final loading at another. Also, there may be new concentrate plants built at other points in Florida--in fact, there are two under consideration at the present time. Shippers and motor carriers should not be required to file applications and support applications when the Commission could authorize motor carriers to render a Statewide origin service." 70/

The Growers and Shippers League of Florida in 1953 presented a formal memorandum to the ICC "to clarify the situation with respect to the need for service from all points of origin in the State of Florida in order to provide adequate transportation for the frozen citrus concentrate industry."71/ This memorandum noted that:

> "In many instances one processor will have another processor of frozen citrus concentrate located in another city produce concentrate for their distribution. At times one processor will have his storage facilities filled to capacity, which will require that he secure space at another processor's plant in another city, and in both instances the product will be stored away from the owner's plant, which would require ... that a truck operator have authority to pick up at both plants....
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> "There are several carriers who have received their certificates of public convenience and necessity, and the ICC has followed the principle which we originally proposed in 1950, by observing the request that such authority be granted on a Statewide destination basis, but has not followed the industry's recommendation that the point of origin be on a Statewide basis.... We refer specifically, and as an example, to the operating authority granted in MC-107107 (sub 18). /This carrier/ was authorized to serve 11 destination States on a Statewide basis, but the points of origin were limited to Bartow, Dade City, Davenport, Leesburg, and Plymouth, Fla., which then required that we apply to the ICC to provide temporary authority to all other points of origin.

69/ Ibid.
70/ Ibid.
71/ Memorandum presented to the ICC at pre-hearing conference re: motor carrier applications concerning the frozen concentrate industry of Florida on behalf of Growers and Shippers League of Florida, Florida Canners Association, Florida Citrus Commission and Florida Citrus Mutual. Oct.21,1953.

"In MC-107107 (subs 40 and 42) /the Commission examiner/ in a proposed report served Nov. 7, 1952, recommended that /the carrier/ be granted Statewide destination authority, with some exceptions, to serve 15 States, but limited the points of origin to 4 cities; and as a result, if the Commission finally issues this operating authority under subs. 40 and 42 exactly as recommended...there will be 11 points of origin that will be precluded from having the service /of this carrier/ and in addition to those 11 points, the new plant at Orlando and the proposed plant at Ft. Meade will also be excluded. 72/

"When the determination is made on the permanent operating authority in MC-64110(sub 13), MC-75185 (sub 202), MC-95540 (subs 226 and 231), and MC-107107 (subs 46, 48 and 49), the needs of the Florida citrus industry are that the authority be granted from all points in Florida so as to enable all producing plants and all cold storage facilities in Florida to have available equal means of transportation without discrimination between the Florida shippers. An elimination from the operating authority of any Florida origin would create the necessity for a new application for temporary authority to serve the omitted origin.

"It is the hope of our industry that in these proceedings, a final determination be made to group all Florida origins as points of origin in each operating authority, and that such determination be adopted as a precedent to control any other or further proceedings involving the transportation by motor vehicle of frozen citrus products from Florida."

72/ In application MC-107107 (sub 40) the carrier requested that Groveland, Forest City, Jacksonville, and Winter Garden, Fla., and points within 1 mile thereof, be included as origin points; and that Norfolk, Va., and Jersey City, N. J., be included among destination points. An ICC examiner recommended that origin points be limited to Groveland, Forest City, Jacksonville and Winter Garden proper. His recommendations did not mention either Norfolk or Jersey City as destination points. In application MC-107107 (sub 41), the carrier asked for Groveland, Forest City, Jacksonville, and Winter Garden, Fla., and points within 5 miles thereof as origin points. The examiner's recommendations listed only Jacksonville as an origin point. In application MC-107107 (sub 42), the carrier asked, as origin points, Groveland, Forest City, Winter Garden, and Jacksonville, Fla., and points within 5 miles thereof, and asked that Texas be one destination. The examiner recommended that origins include only Groveland, Forest City, Winter Garden, and Jacksonville proper, and omitted Texas from destination territory. And in application MC-107107 (sub 47 TA), this same carrier asked that Jacksonville be included as a point of origin, and that Ark., Del., Iowa, Kan., La., Md., Mo., Okla., Va., and W.Va. be included among other States as destination territory. The temporary authority granted Lakeland and the area within 100 miles thereof as origin territory, but excluded all the above-mentioned destination States.

The author has been unable to find any statement of policy by the ICC with respect to the grant of Statewide origin and destination authority. In specific instances, however, the Commission examiners have taken a somewhat more liberal position with regard to Statewide destination than to Statewide origin grants of authority. In 1952, a Commission examiner recommended that Statewide origins not be granted generally, but that in connection with each individual application the need for service from a particular point be examined and appraised. With respect to the applications of three carriers to originate shipments of frozen orange juice concentrate in the Lakeland area generally, the examiner said: 73/

> "...The shippers which support the remaining portions of the applications...all testified as to a need for service from specific points. We do not believe that the evidence warrants a grant of authority to originate traffic at all points in the Lakeland area. At most there is a need for the proposed service from the points specifically named as origin points by the shipper or shippers supporting the respective applications..."

As to need for service from storage points generally, this examiner noted that 74/:

> "The evidence as to a need for service from the so-called storage points is conflicting. For example, it was not until 1950 that ... /a certain large processor/ stored concentrate at points other than at Dade City. At the time of the 1951 hearing, no storage contracts had been made, nor was ... /this firm's/ representative able to estimate the quantity of concentrate, if any, it planned to store at any point. Likewise, during the 1949-50 season ... /another large processor/ stored concentrate at several points. At the time of the 1951 hearing, its warehouse at Plymouth was to be its only warehouse in Florida. We conclude that the record does not definitely establish a need for the proposed service from the so-called storage points. There is no showing of the tonnage to be transported or that any particular point, other than those authorized herein, definitely will be used for storage in the future..."

It is possible that general Statewide grants of authority might engender increased competition among motor carriers. A statement in the same examiner's report, however, recognized the need for competition among motor carriers. The examiner said: 75/

73/ Report of ICC examiner on application MC-105813 (sub 3) et al, dated October 17, 1952.
74/ Ibid.
75/ Ibid.

"...Considering the characteristics of the principal commodity to be transported /concentrate/, however, we believe that the availability of a competitive motor service to the supporting shippers is desirable, and that there should be at least two motor carriers in the territory holding appropriate authority. This, of course, does not mean that in each instance two of the applicants herein should be authorized to serve all of the origins involved or all of the destination territory, as in several instances there are one or more carriers holding permanent authority to provide service and which are rendering an adequate service..."

Although competition among motor carriers is to be expected and is desirable, the severity of the competition for concentrate traffic may doubtless be traced, at least in part, to the delay of carriers in getting authority and to the restricted authority eventually granted to some of them. Thus most carriers, either upon their own initiative or through legal counsel, sedulously watch one another's operations, and keep a close check on all applications made to the ICC for new or extended operating authority. Holders of comparable authority are particularly watchful of ICC actions, with the result that competition among motor carriers is doubtless as keen as that between rail and motor carriers. Representations to the ICC about what might appear to be unauthorized operations of some motor carriers are, therefore, not infrequent. The right of at least three carriers to haul concentrate has been challenged in recent years by other certificated motor carriers engaged in hauling the Florida product.

In 1950, for example, the right of one motor carrier to haul frozen orange concentrate from Florida origins to destinations in the North was questioned by other motor carriers on the ground that his certificate authorized the transportation of "fresh and frozen fruits and vegetables" only. The Commission ruled that such a commodity description did not grant the carrier authority to transport frozen citrus juice or frozen citrus juice concentrates. 76/

In another instance, wherein the authority of a carrier to transport concentrate was challenged by five other motor haulers of the frozen product, the Commission ruled that the questioned authority, to transport canned fruit and canned fruit juices, did not include frozen fruit juice concentrates, which, even though packaged in hermetically sealed cans, depend upon freezing and continued temperature control for protection from deterioration. 77/

The right of one of the first motor carriers to move frozen orange juice concentrate from Florida was challenged in 1951 by a competing motor carrier.

76/ ICC order entered April 3, 1950 re: petition for clarification of certificate in MC-105633 (sub 1).

77/ ICC report and order in MC-C-1355, March 15, 1953.

The Commission was asked to rule that the description, "fruit and fruit juices, fresh, canned or processed," as set out in the carrier's certificate, was not sufficiently broad to include the concentrates. The Commission ruled, however, that frozen fruit juice concentrates were a type of processed fruit juice. "In the advance of chemical research," it said, "processes change and commodities are distributed in different ways. To require modification of a certificate by a change in the commodity description with each advance in the method of preparing the commodity for the market would be unreasonable, and would place an undue burden on motor carriers..." 78/

In another case involving technological changes affecting commodities shipped, a recent Commission decision broadened the operating authority of a motor carrier in recognition of changes in the textile industry. 79/ In this instance, a carrier authorized to transport wool was granted additional rights to permit him to haul synthetic fibers. The rights were given to enable him to keep pace with changes in the practices of textile mills in his area of service, and to broaden his commodity authority to meet the changing needs of the textile industry. In granting broadened authority, however, the Commission made three things clear: First, no basically new service was proposed; second, that no new field of carrier operations would be invaded; and finally, that no change was involved which would materially affect the competitive situation of existing carriers.

The Problem of Balancing Traffic

Motor carriers who haul frozen concentrate from Florida production and storage points to destinations in the North face another problem that has long troubled most truckers--that of finding cargoes to transport on return trips. Because back hauls provide carriers with revenue which otherwise would have to come from higher charges on one-way traffic, a carrier's ability to obtain return loads may be a factor which determines whether or not he will remain in business.

The volume of perishable commodities, including frozen foods, shipped from Florida to northern markets has been increasing steadily for many years. The number of motor carriers equipped to handle this traffic has likewise increased. But the volume of Florida's in-shipments is but a fraction of her out-shipments, particularly her in-shipments of perishables. Hence, competition among motor carriers for available southbound traffic has been extremely keen. The location of new industries in the South, with the consequent increase in population, and the trend of Florida's winter resort area toward becoming a year-round resort area, has relieved the competitive transportation situation somewhat since the end of World War II. Nevertheless, the refrigerated carriers of frozen concentrate continue to find the return haul problem troublesome.

78/ ICC report and order in MC-C-1194, April 20, 1951.
79/ ICC report and order in MC-42871 (sub 3), October 1953.

The return haul problem of the carriers of concentrate, however, appears to stem largely from the fact that many of them have come late into a field already crowded with carriers seeking southbound hauls. It is true that carriers who transport concentrate North can haul unmanufactured agricultural commodities back from the North without ICC certification. They find, however, that the small volume of such commodities moving South is hauled largely by carriers who transport fresh produce to northern markets from the South. Some of the carriers hauling concentrate to northern destinations are able occasionally to lease their equipment to other carriers for trips South. But for those carriers operating several vehicles out of the South, each of which may make two, three, or more round trips every month, these alternatives seldom result in full utilization of equipment.

Testimony of carriers in hearings before the ICC is replete with complaints that the lack of return hauls throws their operations out of balance.80/ Many have reported long waits "around the North" for return hauls which did not materialize. Virtually all have reported the frequent necessity for "deadheading" all or part of the way back to Florida after delivering concentrate in the North.

Thus, in order to be able to take advantage of all opportunities for securing southbound traffic, whether of refrigerated or of dry freight, many of the carriers of concentrate have applied to the ICC for the right to transport southbound after they have delivered concentrate in the North. 81/ Many have had their eyes on a particular type of traffic that is ideally suited to their specialized equipment--the movement of meat, packinghouse, and dairy products from the North into southern areas. Several equipped their trailers with meat racks or rails in anticipation of the grant of authority. Some of this traffic, of course, has long been handled by the railroads, and some has been handled by truckers operating initially from northern origins. Even some of the present carriers of concentrate have held ICC certificates for certain north-south hauls for several years. But because consuming areas for Florida frozen concentrate have widened steadily since the product was first introduced, 82/ few carriers authorized to move concentrate into new areas held authority to haul products out of these areas.

Some carriers of concentrate complain of long delays in securing certificates for handling southbound traffic, and of denial of such certificates,

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80/ See, for example, ICC hearings on applications MC-107107 (sub 9), March 23, 1949; MC-105633 (sub 10), March 16, 1950; MC-107107 (sub 18) March 22, 1950; MC-95540 (sub 173), March 30, 1950; MC-105633 (sub 10), May 1, 1950; MC-107515 (sub 60), July 31, 1950; MC-25798 (sub 6), Jan. 22, 1951; MC-107515 (sub 10), Jan. 24, 1951; MC-95540 (sub 188), Jan. 24, 1951; and MC-107515 (sub 10) May 10, 1951.

81/ For extensive information on carrier application for return haul authority, see ICC examiner's report on application MC-107515 (sub 60) dated Dec. 30, 1952.

82/ See U. S. Dept. Agr., Prod. and Marketing Adm. quarterly report entitled "Fruits and Juices--Availability in Retail Food Stores."

even though their applications have been strongly supported by shippers. The matter of return haul operating rights is not, however, simple. It has been deliberated carefully by the Commission in an effort to protect shippers, carriers, and the public against the detrimental effects of competition which might result from the creation of more trucking service than required to meet shippers' demands.

Despite the delays encountered, virtually all motor carriers hauling Florida frozen concentrate to northern markets at the time of this study held certificates enabling them to handle some commodities from certain specified origins on return trips from the North. Not all held new certificates, nor were all certificates as extensive as desired with respect either to origin or destination territory, or with respect to commodities.

Without specifying the carriers, it is difficult to describe the extent of the rights held by each. Examination of the operating authorities of the major motor carriers hauling concentrate to the North from Florida production or storage points reveals two types of back haul traffic. That from the Northeast consists principally of canned goods, seafood, and miscellaneous fresh and frozen items 83/; traffic from the North Central States consists principally of meat, meat products, and dairy products.

At the time this report was written, it appeared that, although most of the motor carriers transporting concentrate to the North held some authority to make return hauls, their authority may have been too limited to permit full utilization of their equipment. Moreover, consuming areas for frozen concentrate are still expanding. 84/ Thus, if a carrier is granted broader destination authority in the North, he will need broader origin territory in the North and broader destination territory in the South if he is able to compete for the relatively scarce southbound traffic. In other words, because markets for frozen orange juice concentrate are still expanding, the problem of return hauls for motor carriers of concentrate is likely to be a continuing one that can at best be solved for only a few carriers at any given time.

Effect of State Size and Weight Regulations

Florida frozen orange juice concentrate shipped by motortruck has been transported principally to destinations in the District of Columbia and in the 26 States lying east of the Mississippi River, and to destinations in the single tier of 5 States lying west of the River. As noted earlier in

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83/ Until recently, because public warehouse freezer space in the North was limited, some frozen foods were transported to southern warehouses for storage, and later hauled back to the North for consumption.

84/ According to Florida processors, markets for Florida concentrate have expanded westward and now include the Pacific States. See memorandum report of meeting held in Chicago Nov. 21, 1952, by special committee of Florida frozen citrus concentrate shippers and others. Op. cit.

this report, the concentrate trucked to destinations in these States is generally transported in mechanically refrigerated, heavily insulated, 4-axle, tractor-semitrailer combinations--in other words, by large vehicles.

Depending upon make and construction, the unladen weight of a 30-foot, mechanically refrigerated, heavily insulated, tandem-axle semitrailer, suitable for hauling concentrate, varies from 11,000 to 21,000 pounds. Most of them, however, are estimated to have an unladen weight of approximately 16,000 pounds. Depending upon the make, construction, and type of motive power, the unladen weight of the 2-axle tractor power unit averages 9,000 pounds. Thus, the unladen weight of a complete unit consisting of tractor and semitrailer averages 25,000 pounds. 85/ This weight is more than that of a dry-freight vehicle combination of the same dimensions, which weighs, unladen, approximately 18,000 pounds. If the refrigerated semitrailer is equipped with meat racks or rails, as are many which carry meat on return trips to the South, the gross weight of the semitrailer averages 700 to 800 pounds heavier. 86/

All States have set limits on the size and weight of motor vehicles permitted to operate over their highways. There has been a trend, since World War II, toward higher maximums and greater uniformity in allowances among the States. Nevertheless, there is still considerable variation from State to State in maximums permitted on any given vehicle, particularly so far as vehicles with 4 or more axles are concerned.

Height and Width Allowances Generally Satisfactory

Height and width allowances for motortrucks are relatively uniform among the States under consideration. In no State is the maximum width allowance less than 96 inches. Furthermore, all of these States and the District of Columbia permit vehicles to be at least 12½ feet high. Because height and width allowances are now generally reasonable, and because there is such uniformity among the States (table 4), truckers raise few objections to these limits.

Length Allowances Pose Some Problems

In the area under consideration, 12 States and the District of Columbia allow vehicles to be longer than 45 feet. The fact that 19 of the States limit maximum length to 45 feet may, however, prove troublesome to those

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85/ See, for example, ICC hearings on applications MC-25798 (sub 6), Jan. 22, 1951; MC-105813 (sub 3), May 1, 1951; MC-107515 (sub 10), July 31, 1950; and MC-95540 (sub 173), March 30, 1950. Op. cit.

86/ ICC hearings on applications MC-25798 (sub 6), Jan. 22, 1951 and MC-107515 (sub 10), July 31, 1950. Op. cit.

operators who must traverse one or more of the latter States to reach their destinations. Vehicle length, moreover, is a factor considered in determining maximum gross weight allowances in several of the States. Hence, the use of a 45-foot vehicle might mean a reduction in payload for interstate operators.

Gross Weight Allowances Restrictive

State regulations as to gross weight of motor vehicles are of general application and make no special distinction between refrigerated and dry-freight semitrailer combinations. But the ratio of unladen to gross weight of refrigerated equipment, such as is used to haul concentrate from Florida, is less favorable than that of dry-freight equipment. The unladen weight of any given vehicle remains the same regardless of its location. Hence, even moderate differences in State laws or regulations regarding maximum gross weight for a specified size of vehicle may have a considerable impact on trucking costs and charges. Such differences directly affect the amount of payload that may be initially loaded in one area if the load is destined for or passes through an area that has a different limit.

Table 4 shows the maximum gross weight allowance, as of July 1, 1953, on the longest 4-axle semitrailer combination permitted to operate in each of the States under consideration. Maximums vary from 42,000 pounds to 65,000 pounds. The table also shows that there are wide differences in maximums even as between contiguous States. The maximums permitted in Kentucky (42,000 pounds), Pennsylvania (45,000 pounds), and Virginia (50,000 pounds), for example, are considerably lower than those permitted by adjoining States. Inasmuch as all three are "bridge" States--States through which interstate haulers normally pass on their way to destinations beyond--a payload sacrifice on interstate hauls would usually result.

In order to avoid payload sacrifice on hauls through States with low gross weight allowances, some carriers of concentrate resort to various expedients. Until 1953, Tennessee restricted the maximum gross weight of vehicles to 42,000 pounds. Hence at least one operator, who carried Florida frozen concentrate to destinations in Illinois, avoided Tennessee except for routing his trucks through Memphis to Arkansas and Missouri, where gross weight allowances were higher. Memphis, he claimed, in effect allowed an exemption from Tennessee's weight law. 87/ He did not explain how he got from the Mississippi-Tennessee line to Memphis. Another operator reported that he maintained special light vehicles for use on hauls through Kentucky. 88/

87/ Report of ICC examiner on application MC-107107 (sub 18), March 22, 1950. Op. cit.

88/ Report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952. Op. cit.

Table 4. - Restrictions of 31 States and the District of Columbia on the size and weight of 4-axle tractor-semitrailers, as of July 1, 1953 1/

State	Maximum width	Maximum height	Maximum length	Maximum load allowed on: Single axle	Maximum load allowed on: Tandem axles 4 feet apart	Maximum practical gross weight allowance on 4-axle tractor-semitrailer of: Maximum length	Maximum practical gross weight allowance on 4-axle tractor-semitrailer of: 45 foot length
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Inches	Feet	Feet	Pounds	Pounds	Pounds	Pounds
Alabama	96	12½	45	18,000 2/	36,000	55,300	55,300 3/
Arkansas	96	12½	50	18,000	32,000	59,000 4/	59,000 4/
Connecticut	102	12½	45	22,400	36,000	50,000	50,000 3/
Delaware	96	12½	50	20,000 5/	36,000	60,000	60,000
District of Columbia	96	12½	50	22,000	38,000	63,890	60,010
Florida	96	12½	50	18,000 6/	36,000	63,890	60,010
Georgia	96	13½	45	18,000	36,000	55,300	55,300
Illinois	96	13½	45	18,000 7/	32,000	59,000	59,000
Indiana	96	12½	50	18,000 7/	32,000	59,000	59,000
Iowa	96	12½	45 8/	18,000	32,000	59,000	59,000
Kentucky	96	12½	45	18,000 2/	36,000	42,000	42,000
Louisiana	96	12½	50	18,000	32,000	59,000 4/	59,000 4/
Maine	96	12½ 9/	45 9/	22,000 2/	32,000	50,000	50,000 3/
Maryland	96	12½	55	22,400	40,000	65,000	65,000
Massachusetts	96	NS	45	22,400 7/	36,000	50,000	50,000 3/
Michigan	96	12½	50	18,000 5/	26,000 10/	59,000	59,000
Minnesota	96	12½	45	18,000	28,000	55,000	55,000 3/
Mississippi	96	12½	45	18,000 11/	28,650	52,650	52,650 3/
Missouri	96	12½	45	18,000 2/	32,000	59,000	59,000 3/
New Hampshire	96	13½	45	22,000	30,000	50,000	50,000 3/
New Jersey	96	13½	45	22,400	32,000	60,000	60,000 3/
New York	96	13	50	22,400 7/	36,000	63,000	59,250
North Carolina	96	12½	48	18,000 2/	36,000	56,000 12/	56,000 12/
Ohio	96	12½	45 8/	19,000 13/	24,000	59,500	59,500 3/
Pennsylvania	96	12½	45	20,000	36,000	45,000	45,000 3/
Rhode Island	102	12½	50	22,400 7/	32,000	50,000	50,000
South Carolina	96	12½	50	20,000 12/	32,000 12/	58,000 12/	54,560 12/
Tennessee	96	12½	45	18,000	32,000	55,980	55,980 3/
Vermont	96	12½	50	NS 2/	NS 2/	50,000	50,000
Virginia	96	12½	45	18,000 14/	36,000 14/	50,000 14/	50,000 3/, 14/
West Virginia	96	12½	45	18,000	32,000	59,000	59,000 3/
Wisconsin	96	12½	45	18,000 7/ 12/	30,000 12/	57,000 12/	57,000 3/, 12/

NS - Not specified.
1/ Assuming total overhang, front and rear, is 6 feet.
2/ Subject to 600 lbs. per inch tire requirements.
3/ See column 7 - 45 feet is maximum allowed.
4/ Assuming 9,000 lbs. on steering axle.
5/ Subject to 700 lbs. per inch tire requirements.
6/ Subject to 550 lbs. per inch tire requirements.
7/ Subject to 800 lbs. per inch tire requirements.
8/ Trailers limited to 35 feet.
9/ Subject to 1½ feet tolerance.
10/ One tandem axle per combination permitted 32,000 lbs. on designated highways.
11/ On tires 7:75 and larger.
12/ Exclusive of tolerance — i.e., amounts by which maximum weight limits may, under certain circumstances, be exceeded without penalty. Tolerance is granted by some States to cover contingencies such as accumulations of mud, snow or ice, or minor shifts in load. The amount and/or nature of such allowances is not always specified by statute, but rather is left to administrative discretion and regulation.
13/ Subject to 650 lbs. per inch tire requirements.
14/ On other than "heavy duty" highways, 18,000 lbs. axle limit and 35,000 lbs. maximum gross weight.

Computed from data in National Highway Users Conference, State Restrictions on Motor Vehicle Sizes and Weights. Motor Vehicle Law Series — loose-leaf service No. 1.

The 50,000-pound maximum in Virginia, also a bridge State, has long been regarded as excessively restrictive by long-distance carriers of refrigerated commodities. In May 1950, for example, agricultural interests and officials from States south of Virginia sent representatives to Richmond to request the State Highway Commission to grant them relief from Virginia's weight law. They maintained that because the 50,000-pound maximum cut payloads below practicable levels, shippers of refrigerated commodities, whose trucking equipment weighed as much as 30,000 pounds, could not transport by motor vehicle and still comply with the law. The request was formally denied, however, on the ground that the 50,000-pound gross weight limitation was specified by statute, and applied equally to all motor vehicles.

In Florida, South Carolina, the District of Columbia, and New York, maximum gross weights are not uniform for all vehicles, but are determined by a formula which takes into account the distance between the first and last axle of any group of two or more axles. That distance is usually less on a 45-foot vehicle than on a 50-foot vehicle. Table 4 (columns 4, 7 and 8) shows the difference, in each of the four jurisdictions named above, between the maximum weight allowed for a truck 45 feet in length and for a truck of maximum permissible length. Here we have a cause for loss of payload which would exist even if Virginia had no weight limit at all. Whenever a run includes any of the four jurisdictions mentioned above, and also includes any of the numerous States having a length limit of 45 feet, the latter restriction compels the use of a truck which--in Florida, South Carolina, the District of Columbia, and New York--is held down to a weight limit below that which longer trucks are allowed in those same four jurisdictions.

It should be pointed out, however, that operation of a 45-foot, 4-axle vehicle combination in 9 States 89/ which permit greater maximum lengths on 4-axle combinations, does not result in payload sacrifice. Maximum weights permitted in these 9 States are roughly equal to the sum of the loads permitted on the individual axles or combinations of axles. Carriers of frozen concentrate normally operate 4-axle vehicle combinations.

In summary, the situation (based on State size and weight restrictions in effect July 1, 1953) with respect to refrigerated motor carriers transporting Florida concentrate to the destination regions described. appears to be as follows:

To operate legally in all States, motor carriers hauling from Florida production or storage points to destinations in the regions described cannot operate vehicles longer than 45 feet. The maximum weight of 4-axle vehicles and load on trips to the Northeast is 50,000 pounds, provided the trucks

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89/ Arkansas, Delaware, Indiana, Louisiana, Maryland, Michigan, North Carolina, Rhode Island, and Vermont.

stay out of Pennsylvania, where the gross weight limit cannot exceed 45,000 pounds. The 50,000-pound limit is fixed by the gross weight allowances of Virginia and all the New England States. 90/ Unladen refrigerated 4-axle semitrailer combinations have been estimated to weigh 25,000 pounds. Interstate carriers are thus limited to approximately 25,000-pound payloads, or to approximately 900 cases of 6-ounce cans of frozen orange juice concentrate, on hauls to the Northeast. If they stay out of Kentucky and Mississippi on their way, carriers hauling from Florida origins to destinations in the North Central States may operate vehicles with gross weights of 55,300 pounds--slightly higher than is possible on trips to the Northeast. This limit is fixed by the gross weight allowances of Georgia and Alabama. 91/ With such maximum gross weight allowances, payloads carried by average vehicles could likewise be somewhat higher than is possible on trips to the Northeast--30,300 pounds, or about 1,100 cases of 6-ounce cans of frozen orange juice concentrate

According to testimony of motor carrier witnesses with respect to payloads of frozen concentrate, some have exceeded the gross weight limits of certain States on hauls from Florida to northern destinations. 92/ It is, of course, possible that some of these carriers were operating vehicles of minimum unladen weights, which would make possible some increase in payloads. Drop-off shipments en route, if strategically arranged, would also permit carriers to haul greater initial loads than those described and still operate within the legal weight limits of States with low weight allowances. Other operators may be able to go around these States with low weight allowances. Some are perhaps getting permits for loads in excess of State maximum limits. Such permits, however, take time to procure. Moreover, because they are granted for only occasional trips and often for operation over designated routes only, carriers making frequent trips cannot depend regularly upon such special dispensations. For one or more of these reasons, some carriers may be able to haul greater payloads than have been described. 93/

Thus, although size and weight restrictions are troublesome to operators of all large motor vehicles, they appear to be especially difficult problems for carriers of frozen orange juice concentrate. Even a relatively small difference in payload weight may, as shown above, make a significant difference in the net revenue from each haul, as the added weight is obtainable at little added expense.

90/ In addition to the gross weight allowance shown in table 4, North Carolina allows, by statute, an additional 5 percent as "tolerance," while South Carolina allows an additional 10 percent.

91/ In addition to the gross weight allowance shown in table 4, Wisconsin allows a tolerance of 1,500 pounds on single axle loads, and 2,000 pounds on tandem-axle loads.

92/ See, for example, reports of ICC examiners on applications MC-105813 (sub 3), dated Oct. 17, 1952 and MC-105633 (sub 10) et al, dated April 13, 1951. Op. cit.

93/ Most of the States under consideration are rigidly enforcing their size and weight laws. Some threaten to force unloading of excess cargo on the spot. In the case of frozen concentrate, such drastic action would undoubtedly result in heavy loss and damage.

Effect of State Motor Vehicle Taxes

Certain State motor vehicle taxes and fees have a more severe impact on refrigerated motor carriers than on other types. Taxes based on net or gross vehicle weight, and taxes based both on weight and on mileage traveled within a given State, are examples.

In the regions under consideration here, all States and the District of Columbia base their vehicle registration fees on either net or gross weight. Further, four of the States levy additional special fees based on weight. In Iowa, the special fee is designated as a "highway compensation tax;" in Kentucky, it is called a "weight tax;" in Michigan, it is known as a "privilege fee;" while in West Virginia, it is known as a "capacity fee." In those States that have reciprocity agreements with the home State of the interstate trucker, he is not usually obliged to pay the full amount of the registration tax or fee. Special fees are occasionally remitted in part or in full, depending upon the scope of the reciprocity agreements. Reciprocity agreements, however, are subject to termination or amendment by administrative authorities at will. Hence, it is not possible to say with certainty which States in the regions under consideration remit registration and weight fees on interstate trucks. If subject to the full amount of these levies, however, operators of refrigerated equipment would feel the effects of any type of weight levy more than would operators of dry-freight equipment of the same dimensions, because of the greater weight of refrigerated equipment.

Reciprocity agreements do not apply, as a rule, in the case of State mileage tax levies. Hence, taxes of this type are felt particularly by the operators of heavy refrigerated equipment who make frequent interstate hauls. These taxes are variously designated as ton-mile, weight-distance, or as "third structure" 94/ taxes. In most States levying them, the tax is based on a combination of weight (net or gross) and distance traveled. Few carriers find it feasible regularly to stay out of the States imposing such taxes. Hence, because of the substantial mileage they may accumulate in their operations during the year--many make 3 to 4 round trips a month--and because their refrigerated vehicles are heavy, haulers of frozen concentrate find mileage levies burdensome.

As of January 1, 1954, 13 States levied some type of mileage tax on interstate motor carriers operating over their highways. Proposed mileage tax legislation failed of enactment in 10 States during their 1952-53 legislative sessions; Idaho repealed its mileage levy; and the mileage tax option granted truck operators in Wisconsin was declared unconstitutional by a State circuit court. Some form of mileage levy, however, was under serious consideration in many State legislative interim committees in 1954 as the States sought ways of raising additional revenue to repair existing highways and to build new highways adequate to carry the ever-increasing traffic load.

94/ A tax in addition to State registration and fuel taxes.

Interstate motor carriers transporting frozen concentrate from Florida production or storage points to destinations in the Northeastern and North Central States are subject to some type of mileage tax in 4 States. Unless a reciprocity agreement is in force with the carrier's State of domicile, all tractor-semitrailers operating within the State of Florida must pay a tax of 1/2 cent per mile traveled. New York levies a ton-mile tax on all vehicles. The tax is based upon the gross weight of the laden vehicle (or the actual weight of the vehicle when traveling empty), and on the mileage traveled within the State. Rates range from 6 mills per mile on gross weights of 18,001 pounds to 35 mills per mile on gross weights of 76,000 pounds. For gross weights above 76,000 pounds, the rate increases by 2 mills per ton. 95/

South Carolina levies a "license fee" tax on all interstate carriers operating over regular routes within the State. The rate is 1 mill per ton-mile exclusive of vehicle weight, subject to certain minimums. Ohio imposes an "axle mile" tax on all trucks or combinations having 3 or more axles. The rate on 4-axle semitrailer combinations, such as are commonly used to haul concentrate, is 1-1/2 cents a mile.

In addition to these 4 States, Illinois levies an optional mileage-weight tax on commercial vehicles. 96/ Rates range from $2.50 for a loaded vehicle weighing 3,000 pounds or less, plus 2 mills for each mile traveled in excess of 2,000, to $567 for a loaded vehicle weighing 72,000 pounds, plus 114 mills for each mile traveled in excess of 5,000 miles.

Motor carriers generally claim that their profit ratio is extremely low. This would indicate that they might find it difficult to absorb additional tax costs. On the other hand, the competitive situation with respect to the transportation of concentrate has become so sensitive that refrigerated truckers might be reluctant to increase their hauling charges by passing on the mileage taxes. It is understandable, therefore, that the refrigerated motor carriers are watchful of State tax developments, and are particularly apprehensive of the trend toward mileage levies.

Effect of Shippers' Equipment Requirements and Sporadic Allocation of Traffic

Equipment Requirements

Under the ICC order of March 23, 1950, trucking equipment used by those motortruck operators transporting Florida frozen orange juice concentrate under temporary permit was required to meet certain minimum

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95/ Ordinarily, no truck in New York is allowed to operate with a gross weight above 65,000 pounds. However, special permits allowing a greater weight, are occasionally issued for such purposes as hauling a heavy piece of machinery from a railroad to the place where it will be used. Hence the provision in the tax law for weights above 65,000 pounds.

96/ At the time of making application for a new or a renewed license, owners must file a written election with the Secretary of State, deciding whether a flat weight or a mileage tax will be paid.

specifications agreed upon by shippers. The order stated that:

> "Service...shall be restricted to the use of equipment with heavy duty, low temperature mechanical refrigeration, and with not less than 6 inches of insulation..."

Following issuance of the order, shippers of concentrate requested the U. S. Department of Agriculture to study and to report its findings concerning the temperatures maintained in both railroad and truck equipment being used at that time to transport frozen citrus juice concentrate from Florida production and storage points.

Some opposition to the equipment requirements developed immediately among the motor carriers engaged in hauling concentrate. Many felt that 6 inches of insulation would reduce their payloads substantially, to compensate for which their hauling rates would be unreasonably high. No such limitation was placed by the ICC on the rail equipment used to transport the frozen product. At the time, the railroads were supplying shippers principally with ice-and-salt cars. Truckers were quick to cite shippers' testimony at hearings before the ICC respecting their concern over having to ship so much concentrate in the ice-and-salt cars which, shippers said, did not provide adequate protection for concentrate on most runs. 97/ Hence, despite shippers' expressed desire for more adequate rail cars, the fact that they regularly shipped some frozen concentrate in ice-and-salt rail cars but refused to ship in some truck equipment led many motor carriers to conclude that the equipment requirements embodied in the Commission order were unwarranted.

Results of equipment tests made by the Department of Agriculture showed that the heavily insulated, 98/ mechanically refrigerated units being used by the railroads and the motor carriers were generally more efficient for moving frozen concentrate than were other units tested. 99/ Certain modifications in the motortruck-trailers were, however, recommended by the Department as desirable if frozen concentrate was to be transported safely over reasonably long distances and in all types of weather.

97/ See, for example, testimony of industry representatives in ICC hearings on applications as follows: MC-95540 (sub 173), March 30, 1950; MC-107107 (sub 18), March 22, 1950; MC-107107 (sub 9), March 23, 1949; MC-108838 (sub 3), Aug. 10, 1951; MC-25798 (sub 6), Jan. 22, 1951; and MC-108838 (sub 166) et al, 1950. See also statements of shippers at meeting of special committee of Florida frozen concentrate shippers and others, Chicago, Ill., Nov. 21, 1952. Op. cit.

98/ Units having 6 inches of insulating material.

99/ U. S. Dept. Agr. Transportation of Frozen Citrus Concentrate by Railroad and Motortruck from Florida to Northern Markets. Agr. Inform. Bul. 62, June 1951. For results of a later test on another type of refrigerated equipment used to haul frozen concentrate see: A Test Comparing Dry Ice and Mechanical Refrigeration in the Transportation of Frozen Citrus Concentrate by Motortruck -- An Interim Report. U. S. Dept. Agr. Research and Marketing Adm., and Production and Marketing Adm. Feb. 1953.

Despite initial opposition, the trucking industry has accepted the requirements proposed by the shippers and set out in the ICC order of March 23, 1950. 1/ They have been eager to get frozen concentrate traffic, which, unlike that in many other frozen foods, has been available throughout many months of the year. With mechanical refrigeration and 6 inches of insulation, they have reasonable assurance that their trailers can maintain required low temperatures long enough to enable them to transport frozen concentrate to most areas of the country.

Allocation of Traffic

Several motor carriers holding ICC certificates authorizing them to transport concentrate have reported difficulty in securing traffic regularly from Florida shippers. They have been perplexed at this situation. They point out that it is difficult if not impossible for a carrier to receive a certificate unless he has strong shipper support. According to an industry representative 2/, Florida shippers of frozen foods formed a committee some years ago and agreed that applications of all motor carriers would be screened through them to keep requests to the ICC to a minimum. These shippers, he said, would support before the ICC the applications of only those carriers needed by the industry. Carriers contend that they were thus led to believe that if a shipper supported an application, he would use the services of the applicant once he was certificated.

It is conceivable that shippers may have supported motor carrier applications, not with the idea of turning specific traffic over to a particular carrier, but because they wanted the services of alternative carriers, and wanted supplementary service in order to ship when and as needed.

In a hearing on a carrier application, a representative of a concentrate processor testified that there should be competition for concentrate traffic among carriers, and that there should be more than one carrier serving each territory. 3/ A representative of another processor testified that his company wanted as much service as possible so that it could have some flexibility in choosing a carrier. 4/ This same representative also testified that his company "supported many applications in an effort to have available sufficient equipment to meet its present and contemplated future needs." 5/

1/ The relative abilities of rail and motortruck equipment to transport frozen concentrate have, however, been debated in virtually all ICC hearings on motor carrier applications since 1948.

2/ See statement of a representative of a large processor in ICC hearings on application MC-25798 (sub 6), Jan. 22, 1951. Op. cit.

3/ Report of ICC examiner on application MC-105633 (sub 10) et al, dated April 13, 1951. Op. cit.

4/ Report of ICC examiner on application MC-105813 (sub 3) et al, dated Oct. 17, 1952. Op. cit.

5/ Ibid.

Despite the fact that their applications have been supported by shippers, some carriers have reported that their equipment is seldom used to capacity so far as traffic in frozen concentrate is concerned.

One carrier testified that his company, which he said operated suitable equipment, actively solicited business and was told by several shippers that he would receive a share of their traffic. 6/ Nevertheless, although the carrier reported that he had 13 vehicles available, he claims to have averaged barely 3 loads of concentrate a month. 7/

Another carrier testified that he had sufficient suitable trailer units to average 6 or 7 loads a week out of Florida but rarely averaged more than 2. 8/ Still another testified on three separate occasions that his equipment, although "entirely suitable for concentrate hauling and always available in Jacksonville," was never more than 60 percent utilized. 9/ Others told of being promised business but when they drove their trucks to shippers' loading platforms, they were waved away by the traffic managers.

That certain practices of shippers make it difficult for carriers to take advantage of traffic, even when proferred, was also pointed out by truckers in hearings before the Commission. It was explained that during the peak season shippers load motor vehicles from 7 a.m. to midnight. During other seasons loading is begun at 7:30 a.m., and if vehicles are not in the yard at 3:30 p.m., they must wait until the next day to load. It was explained also that many carriers drive vehicles to loading platforms on Fridays, but unless they are loaded by 3:30 p.m., they are held until Monday. 10/ According to carriers, this practice is general among shippers--only one shipper will load until 9 p.m.--and tends to keep trucks idle an undue proportion of the time.

There are many reasons why the services of particular certificated carriers might not be used at any given time. 11/ Although carriers, for example, may have authority to pick up at shippers' plants, as pointed out

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6/ Report of ICC examiner on application MC-105633 (sub 10) et al, dated April 13, 1951. Op. cit.

7/ Report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952. Op. cit.

8/ ICC hearings on application MC-105633 (sub 10), May 1, 1950. Op. cit.

9/ ICC hearings on applications MC-25798 (sub 6), Jan. 22, 1951 and MC-95540 (sub 188), Jan. 24, 1951. Also report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952. Op. cit.

10/ Report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952. Op. cit.

11/ Reasons for shippers' choice of carrier are discussed in more detail beginning at page 66.

above their authorities may not be sufficiently broad to permit them to reach the destination areas of the shipments. Some carriers who have failed to receive cargoes may operate some equipment which does not fully meet shippers' requirements. Other carriers are either unable to give single-line service from origin to destination, or are authorized to operate only over regular routes. Some, perhaps, received their operating authorities from the ICC after shippers had already become accustomed to, and were satisfied with, service rendered by other motor carriers.

Motor carriers reported that for several seasons shippers had been giving a progressively smaller proportion of concentrate traffic to them and a progressively larger proportion to the railroads. This shift of traffic to the railroads has been readily acknowledged by shippers in their appearances in support of motor carrier applications.

A representative of one large shipper testified before the ICC that the proportion of concentrate his firm shipped by rail had risen sharply following the introduction of mechanically refrigerated rail cars, and was very nearly 85 percent at the time of the hearings. 12/ Another shipper reported that its use of rail facilities was increasing and that 59 percent of its total shipments of concentrate moved by rail in the 1951-52 season. 13/ Still another reportedly shipped as high as 90 percent of its concentrate pack by motortruck before the introduction of mechanically refrigerated rail cars. Distribution shifted heavily in favor of rail during the 1951-52 season, however, when 70 percent was shipped by railroad. According to a company representative, "An even higher percentage would have gone by rail if there had been enough of the mechanical cars to supply the demand." 14/

During the 1950-51 season, a large processor reported that 42 percent of its Florida concentrate shipments moved by truck. In the following season, however, truck volume reportedly decreased by about 11 percent. 15/ Another large shipper, during the 1952-53 season, moved only about one-third

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12/ Report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952. Op. cit.

13/ Ibid.

14/ Memorandum report of meeting held in Chicago, Ill., Nov. 21, 1952 by special committee of Florida frozen citrus concentrate shippers and others. Op. cit.

15/ Ibid.

of its concentrate by truck as against one-half two seasons earlier. 16/ And a Florida citrus canners' cooperative testified that its rail volume was up sharply--75 percent of the total shipped from Jacksonville went by rail in the 1951-52 season. This company testified further that rail service would be used in the future. 17/

Motor carriers did not present, in hearings before the ICC, any information which would show specifically the fluctuation in the truck share of the concentrate traffic during the past 8 seasons. On the basis of railroad testimony as to the rail share of Florida concentrate traffic during the past 8 seasons, however, it appears that the motor carriers hauled approximately the following proportions of the total volume shipped to all destinations: 18/

Season	Percentage of total traffic
1945-46	20 19/
1946-47	20 19/
1947-48	20 19/
1948-49	33 19/
1949-50	58 19/
1950-51	52 20/
1951-52	21/
1952-53	40 22/

Frequent shifts and changes in business procedures are, of course, normal. When there is sharp competition for business such as has developed among transport agencies bidding for traffic in frozen concentrate, such changes may have an adverse effect on someone in the line from producer to consumer. As has been pointed out, the tonnage of concentrate hauled by motor carriers has continued to increase, but not so rapidly as the tonnage of this product hauled by rail.

16/ Report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952. Op. cit.

17/ Ibid.

18/ No concentrate has been transported by water carriers in the past 8 seasons.

19/ ICC hearings on application MC-95540 (sub 188), Jan. 24, 1951. Op. cit.

20/ ICC hearing on applications MC-25798 (sub 6), Jan. 22, 1951. Op. cit. Also hearings on application MC-105633 (sub 10) et al, Apr. 13, 1951. Op. cit.

21/ Information not available.

22/ Calculated from data in an exhibit presented by the Florida Canners Association at ICC hearings on application MC-64110 (sub 13) et al. Tampa, Fla., Jan. 18, 1954. Considering shipments destined only to the States covered by this report (Fig. 1), it appears that in the 1952-53 season, 46 percent moved by truck.

Problems of the Rail Carriers

According to spokesmen for the two rail lines originating traffic in Florida frozen orange juice concentrate--the Atlantic Coast Line and Seaboard Air Line Railroads--they have suffered progressive loss of traffic and consequent loss of revenue (1) because of the changing form in which Florida oranges have been marketed in recent years 23/; and (2) because the ICC has authorized motor carriers to haul frozen orange juice concentrate, thereby removing both present and potential tonnage from the railroads' citrus traffic volume.

Effect of Changes in Utilization of Orange Crop

In statements made to the ICC regarding the grant of operating authority to motor carriers, the two rail lines have presented information to show the trend in their share of traffic from the movement of Florida oranges over a period of years. They have pointed out that products of the citrus industry have played an important part in the growth and development of rail service in Florida. Because a large proportion of their total mileage is in Florida, they have also contended that any decrease in Florida citrus traffic would directly affect operations and revenue over their entire systems.

Data presented by the railroads, together with information from other sources (table 5), show that Florida orange production has increased sharply since 1945. They also show that both the total volume of fresh oranges shipped out of the State and the volume hauled by railroad have generally decreased, the result primarily of the diversion of fresh fruit to processed citrus products, including frozen orange juice concentrate.

Information with respect to the total volume of canned single-strength orange juice shipments hauled by the two rail lines is not available. An exhibit (table 6) filed by the Atlantic Coast Line Railroad in connection with a motor carrier application for authority to transport frozen concentrate shows, however, how the shift in the orange marketing pattern affected the traffic and revenue of this one rail line. 24/ The Coast Line did not originate all shipments of Florida canned single-strength orange juice. Testimony of a Coast Line representative suggests, however, that the downward trends shown in table 6 were repeated so far as the Seaboard's volume of traffic and revenue were concerned.

The steady increase in the output of Florida frozen orange juice concentrate was shown in table 1. Presumably the volume of concentrate shipped out of the State has likewise increased each season.

23/ See table 2 for information on utilization of Florida orange crop.
24/ ICC hearings on application MC-25798 (sub 6), Jan 22, 1951. Op. cit.

Table 5.--Florida production and out-of-State shipments of fresh oranges, 1945-53

Season	Production	Volume shipped out of State	Volume hauled out of State by rail	Railroad share of total out-of-State shipments
	1,000 boxes	1,000 boxes	1,000 boxes	Percent
1945-46	49,800	28,062	25,910	92
1946-47	53,700	30,297	25,471	84
1947-48	58,400	25,322	19,588	77
1948-49	58,300	28,647	16,447	57
1949-50	58,500	20,946	9,145	44
1950-51	67,300	22,200	13,421	60
1951-52	78,600	27,705	15,745	57
1952-53	72,200	22,789	11,534	51

Florida Crop and Livestock Reporting Service. Florida Citrus Fruit. Annual Summary, 1952.

Table 6.--Tonnage and revenue from canned single-strength orange juice hauled by Atlantic Coast Line Railroad, 1947-51

Season	Volume hauled	Revenue 1/
	Tons	Dollars
1947-48	325,193	2,655,668
1948-49	388,236	3,794,950
1949-50	233,962	2,376,926
1950-51 2/	155,739	1,555,443

1/ The decline in reported revenue occurred despite the fact that there was some increase in freight rates on canned juices in the period following World War II.

2/ 10 months only. Data from exhibit filed in connection with ICC hearings on application MC-25798 (sub 6), Jan. 22, 1951.

Information from the Fruit Growers Express Company, the refrigerated carline which supplies rail refrigerator cars to the Atlantic Coast Line and Seaboard Air Line Railroads for Florida concentrate shipments, shows that the volume of Florida orange juice concentrate transported in the refrigerator cars owned by this company increased as follows in the 6 indicated seasons (September 1 through August 31):

Season	Rail volume Carloads
1947-48	269
1948-49	1,290
1949-50	1,843
1950-51	1,792
1951-52	4,506
1952-53	4,358

Railroad witnesses have pointed out that despite the increase in the volume of concentrate shipped by rail, their citrus traffic has been considerably below what it would have been had all of the salable orange crop been marketed as fresh fruit. Using the situation in the 1951-52 season as an example, the effect of the production of concentrate on the volume of railroad fresh orange traffic may be illustrated.

Reference to table 2 shows that in the 1952-53 season, approximately 33 million boxes of fresh fruit were utilized in the production of frozen orange juice concentrate. Reference to table 5 shows that in the 1952-53 season the railroads transported 51 percent of the oranges shipped out of Florida as fresh fruit. If 51 percent of the 33 million boxes of oranges utilized in the production of frozen concentrate in the 1952-53 season had been shipped by rail as fresh fruit, approximately 34,000 carloads would have been transported. 25/ As shown in table 5, however, only about 11.5 million boxes, or approximately 23,000 carloads, of fresh fruit were actually shipped out of Florida by rail in the 1952-53 season. Rail shipments of concentrate totaled only about 4,300 carloads in the same season. 26/

Examples of how the diversion of fresh fruit to the manufacture of processed juices resulted in loss of rail revenue have been given by the railroads in several hearings on motor carrier applications and elsewhere in the past few years. 27/ Such examples contain an implication that the railroads might have carried, as fresh fruit, all the oranges used in the manufacture of processed juices. Substituting freight rates in effect on June 30, 1953, for the earlier rates given in the railroad exhibits and other materials shows the following:

25/ An average carload contains 500 boxes of fresh fruit, or about 50,000 pounds.

26/ An average carload of frozen orange juice concentrate contains approximately 2,500 cases of 6-oz. cans, or about 70,000 pounds.

27/ See, for example, ICC hearings on applications MC-25798 (sub 6), Jan. 22, 1951; MC-105633 (sub 10), May 1, 1950; and MC-95540 (sub 188), Jan 24, 1951; report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952, op cit.; and address by T. M. Healy, Association of American Railroads, before the Florida Canners Association, Palm Beach, Fla., Oct. 21, 1950.

(1) On the basis of rail freight rates in effect on June 30, 1953, the rail revenue from 1 carload of fresh oranges moved from Lake Wales, Fla. to New York City would have been $613.48 28/

(2) According to trade sources, in the 1952-53 season, 29/ the juice contained in 2 carloads of fresh fruit was equivalent to that contained in 1 carload of No. 2 cans of single-strength orange juice. 30/ On the basis of rail freight rates in effect on June 30, 1953, the rail revenue from 2 carloads of fresh fruit moved from Lake Wales, Fla. to New York City would have been ..... $1,226.96 31/ and the rail revenue from 1 carload of No. 2 cans of single-strength orange juice moved from Lake Wales, Fla., to New York City would have been ... $666.00 32/

(3) According to railroad testimony, one 70,000 pound rail car of 6-ounce cans of frozen orange juice concentrate contains the juice equivalent of

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28/ On the average, 500 boxes of fresh fruit, or 50,000 pounds, constitute a rail carload. Total line haul charge $550; standard refrigeration charge $63.48 per car. With respect to refrigeration, it should be pointed out that if he so desires, a shipper may take advantage of a special refrigeration service (Item 80-A Southern Freight Tariff Bureau Tariff No. 782-A, ICC-1211) on rail shipments of fresh oranges moving from Florida to New York City as well as to some other points. This special service, provided by the railroads to meet truck and water competition, provides the shipper with initial icing without cost--8,000 pounds of ice free from January through March inclusive; 6,000 pounds free at other times. If one reicing is needed en route, a charge for ice is made at a rate provided in Quinn's Perishable Protective Tariff. If more than one reicing en route is required, the shipper pays the standard refrigeration charge. The bill of lading must bear the notation that special refrigeration service is desired.

29/ Slight variation from season to season, depending upon the juice content of the fresh fruit.

30/ Determined as follows: Shipping weight of 1 case of 24 No. 2 cans of single-strength orange juice is approximately 37 pounds. 1,620 cases, or 60,000 pounds, constitute an average rail carload. In the 1952-53 season, 1 box of fresh oranges made 1.60 cases of single-strength canned juice; approximately 1,000 boxes of fresh fruit were required to make 1,620 cases (1 carload) of single-strength canned juice. 500 boxes of fresh fruit constitute an average carload. 2 carloads of fresh fruit, therefore, made 1 carload of No. 2 cans of single-strength juice.

31/ Line haul charge on 2 carloads $1,100; standard refrigeration charge on 2 carloads $126.96. See also footnote 28/ above.

32/ Line haul charge only; no refrigeration necessary.

12.5 - 50,000 pound cars of fresh fruit. 33/
On the basis of rates in effect on June 30, 1953, the rail revenue from 12.5 carloads of fresh fruit moved from Lake Wales, Fla., to New York City would have been $7,700.24 34/
and the rail revenue from 1 carload of 6-ounce cans of frozen orange juice concentrate moved from Lake Wales, Fla. to New York City would have been $1,089.22 35/

On the basis of rates in effect in the 1952-53 season, for every carload of single-strength canned orange juice carried, the railroads might appear to be losing, in equivalent fresh fruit traffic revenue, $560.96. For every carload of frozen orange juice concentrate carried, they might appear to be losing, in equivalent fresh fruit traffic revenue, $6,611.02.

In their testimony at various hearings before the ICC, the Atlantic Coast Line and the Seaboard Air Line Railroad representatives stated that although some general rail traffic had developed as the result of the manufacture of processed citrus products, it had not been of material help to them. A representative of the Coast Line Railroad testified, for example, that revenue from the movement of commodities associated with the citrus processing industries (table 7) was $814,088 greater in 1950 than in 1949. On the other hand, he testified that the system revenue over the same period, from moving commodities associated with the production of fresh fruit, showed a decline of $362,502, leaving the line a new gain of only $451,586. This gain, compared with a loss between 1949 and 1950 of more than $4.3 million on fresh citrus movements, was evidence, he contended, of the "havoc wrought by the development of the processing industries." 36/

The reported decrease in rail traffic volume of those commodities shown in table 7 occurred despite an increase in total shipments of these commodities to Florida canning plants. According to an Atlantic Coast Line

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33/ Determined as follows: Shipping weight of 1 case of 6-ounce cans of frozen orange juice concentrate is approximately 28 pounds. An average rail carload of 6-ounce cans of frozen concentrate contains 2,500 cases, or approximately 70,000 pounds. In the 1952-53 season, 2.5 boxes of fresh fruit made 1 case of 6-ounce cans of concentrate; 6,250 boxes of fresh fruit made 1 carload, or 2,500 cases. 500 boxes of fresh fruit constitute an average carload; 6,250 boxes constitute 12.5 average carloads.

34/ Line haul charge on 12.5 cars is $6,875; standard refrigeration charge (computed on 13 cars at $63.48 per car) is $825.24. See also footnote 28/ above.

35/ Line haul charge $994; charge for mechanical refrigeration $95.22 per car.

36/ ICC hearings on application MC-105633 (sub 10), May 1, 1950. Op. cit.

witness, the decrease was the result of two factors--competition from commercial carriers, and the fact that some shippers used their own vehicles to haul products inbound to Florida. Although tinplate was used by four can manufacturing plants in Florida, the witness explained that much tinplate tonnage originating in the Baltimore area moved via all-water or via truck-water to Florida. Moreover, he pointed out that because rail rates on some inbound commodities were low in order to meet competition of shipper-owned trucks, rail traffic was not as remunerative as the volume might indicate. He noted, for example, that although the railroads hauled much of the tinplate originating in the Birmingham district, the competitive rail rate of 53 cents per hundredweight 37/ was depressed in comparison with a "normal" rate of 83 cents per hundredweight.

Table 7.--Commodities moved to 29 citrus canning plants in Florida by Atlantic Coast Line Railroad 1947-48--1949-50 seasons 1/

Commodity hauled	1947-48 season	1948-49 season	1949-50 season
	Carloads	Carloads	Carloads
Cans	7,698	7,216	7,101
Cartons	134	69	39
Fuel oil	152	110	105
Labels	29	60	35
Sugar	116	123	91
Machinery	10	12	0

1/ Apparently the 29 plants included frozen orange juice concentrate plants as well as other types of citrus canning plants.

From exhibit filed by the Atlantic Coast Line Railroad in hearings before the ICC on application MC-105633 (sub 10), May 1, 1950.

The Atlantic Coast Line 38/ also presented the following figures to show that their miscellaneous outbound rail traffic from canning plants--citrus pomace, final syrup, and molasses--was decreasing, causing a decline in revenue from that traffic source 39/:

Year	Number of carloads	Tonnage
1948	1,260	56,144
1949	1,000	45,415
1950	968	43,749

37/ The rate in effect at the time of the hearings in May 1950.
38/ No comparable data supplied by the Seaboard Railroad.
39/ ICC hearings on application MC-105633 (sub 10), May 1, 1950. Op. cit.

Effect of Competition from Motor Carriers

Because the two rail lines feel that they have lost traffic in fresh fruit as the result of the diversion of fresh fruit to processed juice manufacture, they have made a sustained effort to maintain as high a ratio as possible of the frozen concentrate traffic. Both the Seaboard and the Coastline Railroads have opposed grant of ICC operating authority to specific motor carriers. The reason, they claim, is that the truckers, if certificated, would be able to secure traffic, particularly that destined for on-rail points. Many statements in support of their claims to concentrate traffic have been made by railroad witnesses in hearings before the ICC. Beginning with their earliest appearances in hearings on motor carrier applications, the railroads' arguments have included those shown below. Although the arguments cited were made with respect to applications of individual motor carriers for authority to serve specific points, the same arguments have been repeated in more than one instance.

The railroads originally contended that since they traditionally carried the greater proportion of the fresh fruit, the Commission should not permit frozen orange juice concentrate to be handled by the motor carriers, most of whom had never hauled the fresh fruit. To grant such authority, they argued, would "aggravate the competitive situation to the prejudice of the rail carriers." 40/

As the number of motor carriers seeking authority to transport concentrate increased, the railroads considered the ICC grant of temporary authorities a serious threat. They argued that if the Commission were to grant temporary rights, the motor carriers would invest heavily in refrigerated equipment, and that when they applied for permanent certificates, the Commission would be inclined to grant them. 41/

Somewhat later, railroad witnesses admitted that rail lines could not provide shippers with reasonably adequate service on drop-off shipments, handle less-than-carload traffic in frozen commodities, or furnish shippers with enough suitable equipment at all times. This was said although the railroads still opposed the grant of authority to motor carriers generally. They argued, however, that although some frozen concentrate would have to move by truck, truck movement should be limited to relatively short distances, leaving to the railroads those hauls to destinations 1,000 miles and more from Florida. 42/

40/ See report of ICC examiner on application MC-105633 (sub 10), dated April 13, 1951, op. cit., based on hearings conducted some time earlier; and hearings on application MC-41041 (sub 29 TA), April 18, 1951.

41/ Minutes of conference between shippers and carriers of concentrate and ICC. Washington, D. C., March 1950.

42/ Testimony of ACL Railroad representative in ICC hearings on application MC-105633 (sub 10), May 1, 1950, op. cit., and testimony of ACL and SAL Railroad representatives on application MC-95540 (sub 188), Jan. 24, 1951. Op. cit.

As increasing numbers of mechanical refrigerator cars were put into service, the railroads argued that truck service for hauling frozen concentrate from points in Florida to destinations requested by carriers was not needed. Their reasoning was that the railroads were able to supply shippers with all the refrigerated equipment they needed. To prove the adequacy of the refrigerator car supply, a Fruit Growers Express Company representative pointed out that for the first two months of 1950 an average of 60 rail cars was available daily for hauling concentrate, but that only about 9 were used. Moreover, he said, the maximum number loaded on any single day was 22 on April 19, 1950. 43/

As proof of the adequacy of the refrigeration of the cars themselves, the roads reported that their claim record on frozen commodities, including concentrate, was almost perfect. 44/ The Atlantic Coast Line, for example, showed that during 1951 their claim bills for freight moving under the frozen foods classification were only $12, and were only $15 for the first four months of 1952. 45/ In at least one hearing before the ICC, however, 46/ shippers testified that, although many shipments of frozen foods, including frozen concentrate, had been damaged because the temperature of the product had risen in transit, the product remained edible and hence was not condemned by food inspectors. Consequently, they said, it was impossible to prove a claim for damage.

Also, the general traffic manager of a large processor recently pointed out that, in their attempt to encourage the rail lines to build more mechanical cars for the movement of concentrate, shippers had been extremely lenient on claims. "In many instances," he said, "merchandise has been returned to the original shipping point for reprocessing at a great expense to the shipper, but at no cost to the carrier. In some of the cases, the question of processing a claim against the carrier for improper handling and/or refrigeration on the original movement from origin to destination was borderline, involved some technicalities, or was questionable." 47/

More recently, the position taken by the railroads has been less far-reaching. They have argued that, because they now have enough cars for moving concentrate, they are therefore "able and willing" to provide adequate facilities and service for moving traffic between certain origins and destinations which motor carriers seek to serve. 48/

43/ Report of ICC examiner on application MC-105633 (sub 10), dated April 13, 1951. Op. cit.

44/ Some cars supplied by the railroads, particularly at the peak of the processing season, have been ice-and-salt cars.

45/ Report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952. Op. cit.

46/ Ibid.

47/ Memorandum report of meeting held in Chicago, Ill., Nov. 21, 1952 by special committee of Florida frozen citrus concentrate shippers and others. Op. cit.

48/ Report of ICC examiner on application MC-105813 (sub 3), dated Oct. 17, 1952.

They have argued, moreover, that in granting truckers the operating authority sought, the Commission has frequently paid "scant if any heed" to the duplication of services which will result. 49/ In addition, the railroads have claimed that the grounds on which examiners conclude that motor carrier applications should be granted are controverted by the hearing records, and that Commission recommendations are in conflict with principles established in the Kenosha case 50/ and in other proceedings not specifically cited.

To support their argument that competition from trucks was cutting into their traffic in frozen concentrate, various railroad witnesses have supplied data at hearings over the past few years. These data show both the season-to-season increase in concentrate output and the fluctuations in the share of all concentrate traffic going to the railroads. Their testimony and data from other sources show that the rail share of the total volume of Florida frozen concentrate which moved to all destinations in the United States and Canada was as follows:

Season	Railroad share of total
	Percent
1945-46	80 51/
1946-47	80 51/
1947-48	80 51/
1948-49	67 51/
1949-50	42 51/
1950-51	48 52/
1951-52	53/
1952-53	60 54/

From these data, it is apparent that, despite the growing volume of concentrate available for shipment, beginning in the 1948-49 season the railroads' share of total shipments decreased sharply. Following the installation of mechanically refrigerated cars, beginning in the 1950-51 season, traffic began to shift percentagewise in favor of the railroads. Between the end of the 1949-50 season and the end of the 1952-53 season, the increase in the railroads' share of out-of-State shipments was substantial.

49/ Ibid.

50/ 52-MC-C-123 (ICC). For further discussion, see p. 63 of this report.

51/ Testimony of Seaboard and Atlantic Coastline Railroads in ICC hearings on application MC-95540 (sub 188), Jan. 24, 1951. Op. cit.

52/ ICC hearings on application MC-25798 (sub 6), Jan. 22, 1951, and report of ICC examiner on application MC-105633 (sub 10) et al dated April 13, 1951. Op. cit.

53/ Not available.

54/ Considering shipments destined only to the States covered by this report (Fig. 1), it appears that in the 1952-53 season, 54 percent moved by rail. Computed from data contained in exhibit presented by the Florida Canners Association at ICC hearings on application MC-64110 (sub 13) et al, Tampa, Fla., Jan. 18, 1954.

This return of concentrate traffic to the railroads is in contrast to the situation described for frozen foods in general by a journal of the frozen food trade. This trade source states that trucks are handling more frozen foods than are the railroads; and that they have been getting a larger share of the total frozen food shipments each year--72 percent of the frozen food pack in 1953 compared with 66 percent in 1952 and 61 percent in 1951. 55/

Railroad representatives testified in ICC hearings only as to their share of the total volume of concentrate shipped out of Florida to all destinations in each of the 6 seasons, 1945-46 through 1950-51. Recent information from the Florida Canners Association 56/ shows, however, that in the 1952-53 season, 54 percent of all the concentrate shipped from Florida to destinations in the regions under consideration (Fig. 1) was transported by rail, and that 46 percent was transported by motor-truck. Without comparable data for earlier seasons, it cannot be established that the rail share of the 1952-53 season traffic to the selected regions showed any marked change over that of other recent seasons.

With respect to rail revenue from the transportation of Florida concentrate, the only information released by the railroads is that for a single season's operations. In a hearing before the ICC in 1950 57/, a Seaboard Air Line Railroad representative testified that during the 1948-49 season the Seaboard and the Atlantic Coast Line together transported approximately 37,093 tons of frozen concentrate to destinations in all parts of the nation. He added that the revenue from these hauls totaled $609,467, or roughly $16.44 a ton.

Some ICC Reactions to Railroad Arguments

In the process of determining which motor carriers should be granted what operating rights, the ICC reviews all the evidence presented to it in formal hearings. It considers the commodity to be hauled; the existing or potential volume of traffic involved, or both; the points the carrier or carriers seek to serve; the duplicate rights that may be involved; the supporting evidence presented by shippers or others; and all evidence presented in opposition to the grant of authority. As mentioned above, both the Atlantic Coast Line and the Seaboard Air Line Railroads have presented evidence in opposition to motor carrier applications for authority to haul concentrate from Florida production or storage points. The following statements, excerpted from ICC reports, were made in individual cases at various stages of the regulatory process.

55/ Quick Frozen Foods. 16(4):63, 109. Nov. 1953.
56/ Exhibit presented by Florida Canners Association at ICC hearings on application MC-64110 (sub 13) et al, Tampa, Fla., Jan. 18, 1954. Op. cit.
57/ ICC hearings on application MC-105633 (sub 10), May 1, 1950. Op. cit.

In commenting upon the railroads' showing of revenue loss because fresh oranges were diverted to the manufacture of processed juices, an ICC examiner observed in one instance 58/ that the railroads "completely overlooked the fact that the manufacture of concentrate had increased the inbound tonnage of tinplate, paper cartons, sugar, machinery and parts, as well as the economic effect on the cities and towns where more than 3,000 people were engaged in this business. "Neither," according to the examiner, "do they consider the outbound traffic of the pulp, molasses, and other items used in the manufacture of feed and the consequent increase in livestock. In other words," the examiner concluded, "the railroads have not been injured by the diversion of the fresh fruit business to the processing of concentrate."

With respect to the railroads' testimony concerning the adverse effect on their traffic and revenue of the grant of operating authority--either temporary or permanent--to motor carriers, a Commission examiner said in 1952: 59/

> "The granting of authority, temporary and permanent, has not resulted in a great loss of traffic to the railroads. Some of the witnesses testified that they had used motor carriers to develop a market, and then turned to the railroads after the market had been developed...."

As for the railroads' general contention that, because they had sufficient equipment of satisfactory type for shippers' needs, motor carriers should be granted neither new nor extended authority to haul frozen juice concentrates, comment may be found both in reports of Commission examiners and in reports of Division 5 of the Commission. In one instance involving the transportation of concentrate, the Commission (Division 5) stated 60/:

> "We agree with the railroads ... that the temperatures ... in rail transit are well within the zone of safety for the handling of concentrate ... and that the difference, if any, in transit time between motor and rail service is not a matter of real consequence. Further, rail service is generally satisfactory for ... carload shipments.

58/ Report of ICC examiner on application MC-105633 (sub 10) et al, dated April 13, 1951, based upon hearings held in 1950; approved by Division 5 orders dated October 17, 1952, and March 4, 1953. Op. cit.

59/ Report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952, but based upon hearings held some time earlier. Op. cit.

60/ Report and order of Division 5 on application MC-105813 (sub 3) et al, dated Oct. 17, 1952. Op. cit.

> "Railroads ... do not provide refrigeration service in respect of less-than-carload shipments ... from points in Florida. A portion of the considered traffic /in this instance/ moves to dealers who are not in a position to buy in carload lots ... Further, some of the shippers and consignees are not located on rail ... We cannot find that existing rail service is adequate. We conclude that a need exists for service by motor vehicle from and to the points or territory /described in the report./"

In another instance, an ICC examiner said in his report 61/:

> "It is much more economical to make certain shipments by rail than by motor carriers. The railroads now have a large fleet of refrigerator cars which are acceptable and satisfactory to the shippers of the concentrate traffic. On the other hand, the shippers have used and will continue to use motor carriers where customers desire a faster service, small quantities, and where there is no direct rail service to a storage warehouse. Motor carrier service is the only service satisfactory for the handling of stopping in transit to complete or to partially unload shipments of concentrate."

In still another instance involving the grant of operating authority 62/ to 11 motor carrier applicants to carry frozen orange juice concentrate, Division 5 of the Commission rejected the railroad contention that the grant of authority to certain of the carriers would conflict with the principles established in the Kenosha case. 63/ Division 5 granted authority to a majority of the 11 applicants. In doing so the Division pointed out that whether a grant of authority to one or more of the applicants would conflict with the principles established in the Kenosha case depended upon whether existing service was or was not adequate. It then went on to recall that in the Kenosha case, which involved the transportation of automobiles, it had said:

> "We are aware that in connection with numerous applications for authority to operate as a motor carrier in interstate or foreign commerce, it has been found that a shipper is entitled to both motor and rail service. But in so finding, the basic issue has always been whether the public convenience and necessity require a proposed operation. We do not, however,

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61/ Report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952. Op. cit.

62/ Report and order of ICC Division 5 on application MC-105813 (sub 3) et al, dated Oct. 17, 1952. Op. cit.

63/ Kenosha Auto Transport Extension. ICC. 52 MC-C-123. Op. cit.

> believe that, as a matter of law, a finding of public convenience and necessity must necessarily follow a showing that there is no existing motor service. Rather the issue of public convenience and necessity is a question of fact which depends, among other things, on whether existing service is, or is not, adequate."

In view of the Commission decision in the Kenosha case and the two cases cited immediately above--MC-108838 (sub 166) et al, and MC-105813 (sub 3)--a more recent decision of Division 5 with respect to a measure of the adequacy of transportation service is of interest. 64/ Division 5's denial of a motor carrier's application for authority to transport canned goods from certain northern origins to certain southern destinations, followed their finding that the railroads were well equipped to handle long hauls of canned goods. In its report, Division 5 of the Commission said:

> "We have reviewed the entire record in the light of the arguments made by the parties in their exceptions and reply, and we conclude that the application should be denied. There is no substantial evidence before us showing that the existing transportation services, both rail and motor, are inadequate to meet the reasonable needs of the supporting shipper. Although applicant states generally that faster service than the rail carriers offer is needed by the shipper, there are no facts shown which support such a conclusion. The fact that applicant has served shipper well in the past may indicate a preference for applicant over other carriers, but such a preference cannot be considered the equivalent of proof of the inadequacy of the existing service. On the record as a whole, therefore, we are compelled to conclude that substantial evidence of a need for the proposed service is lacking. Other considerations present lend support to our conclusion. The long-haul transportation of canned goods appears to be transportation which rail carriers are well equipped to perform, and we should not encourage the diversion of such traffic from them merely to suit the preference of a shipper, where, as here, the record contains no convincing evidence that shipper has experienced or will experience any real difficulty in procuring either rail or motor carrier service."

64/ Report and order of ICC Division 5 on application MC-74846 (sub 25), dated March 20, 1953.

In petitioning for reopening and reconsideration by the entire Commission, the motor carrier applicant declared that the Commission finding , if allowed to stand, would destroy all principles of regulation enunciated in the national transportation policy, and asked:

> " ... what about the hundreds of motor carriers who have in the past been authorized to long-haul transportation of canned goods despite rail opposition? From now on, will all motor carrier applications be denied extensions on the basis that a certain type of traffic 'belongs to the rails'? It 65/ ignores that a needed reduction of time in transit, stop in transit to partially unload, are more flexible than the rail service and are needed by the shipper. It ignores the fundamental fact, that the authority, if granted, would not have any adverse effect upon the railroads or the one motor carrier who intervened, but withdrew its opposition ..." 66/

65/ The Commission's decision.
66/ Quoted exactly thus in Traffic World, 93(3):33, January 16, 1954. Action still pending as of April 26, 1954.

FACTORS INFLUENCING SHIPPERS' CHOICE OF CARRIER

The objective of shippers of concentrate has always been to get a quality product into the hands of consumers. To accomplish this objective, they need fast, continuous, and dependable transport service. Flexibility of service is particularly important, because frozen concentrate is highly perishable, and must be delivered direct to the consignee wherever he may be, with no delays en route during which the shipment might spoil.

Although in general, shippers honor their customers' routing instructions so far as possible, hearings on motor carrier applications indicate that most plant traffic managers are reasonably free to route shipments of concentrate as they choose. 67/ Shippers would thus appear to be in a strategic position to allocate traffic among the various carriers. Testimony given in hearings on motor carrier applications, and statements made elsewhere by shippers, suggest, however, that choosing a carrier is not always easy. Shippers' choice of carrier to transport concentrate to market depends upon their appraisal of the importance of the relative advantages and disadvantages of each type of service at any given time.

Some Shipper Views on Motor Carrier Service

Problems associated with motor carrier regulation, discussed earlier in this report, appear to be responsible for some of the deficiencies which many shippers report concerning the truck service available to them in recent years. Although the truck lines have no control over these regulatory factors, it is nevertheless likely that these factors have influenced individual shippers in their choice of carrier.

Various shippers, for example, have reported difficulty in securing sufficient truck service both on a long-time and on an emergency basis. They have pointed out that delay in granting operating rights to motor carriers meant that the number of trailers available to them, to ship an ever-growing volume of concentrate to widening market areas, could increase but slowly. A large processor-shipper reported, for example, that at times trucks were in such short supply that his company had to wait as long as 10 days for service, and at one time had a backlog of as much as 50,000 cases of concentrate waiting to be shipped. 68/

67/ For information on practices followed by individual shippers of concentrate, see ICC hearings on applications MC-95540 (sub 173), March 30, 1950; MC-107107 (sub 9), March 23, 1949; MC-107107 (sub 18), March 22, 1950; MC-25798 (sub 6), Jan. 22, 1951; and report of ICC examiner on application MC-105633 (sub 10) et al, dated April 13, 1951. Op. cit.

68/ Report of ICC examiner on application MC-108838 (sub 166) et al, dated November 7, 1952. Op. cit.

In addition, shippers reported that some truckers often promised service which they could not supply, frequently because they did not know the extent of their operating rights at any given time. 69/ A large processor, for example, testified that it had to look into the operating authority of every motor carrier every time it hired one. 70/

Moreover, as shippers have repeatedly noted, temporary authority is granted by the ICC for short periods only—90 to 180 days as a rule--although some truckers have operated under temporary permits for longer periods. 71/ Shippers point out, however, that this does not ensure that permanent rights will be granted to a carrier, nor that permanent rights will, if granted, be as extensive as those held on a temporary basis. Under the circumstances, carriers have hesitated to add to their fleets, and shippers have been reluctant to arrange for the services of carriers whose operating rights have been so ephemeral.

Insufficiency of truck service for hauls from or to particular points has been a source of complaint by some shippers who have contended that motor carrier operating authorities have not kept pace with the expansion of concentrate production, storage, or consumption. If they are to use the services of truckers, the truckers must be able to pick up at processing plants and/or storage points, and deliver to any points to which concentrate is consigned.

Arguments of some shippers in support of Statewide origin and destination authority grants to motor carriers have been discussed elsewhere in this report. 72/ Their main argument has centered around the fact that the pattern of concentrate producing and shipping operations is constantly changing. The number of processing and storage points has been increasing steadily, distribution areas have widened, and shippers who do no processing of their own change their sources of supply from season to season. Moreover, the argument runs, the processors' practice of packing concentrate under numerous brands and their practice of changing brands from season to season are becoming more common. 73/ Because certain brands sell better in one consuming area than in another, irregularities of brand distribution tend to bring about some dislocation among motor carriers whose operating authorities are limited. Therefore, some shippers imply that, if the carriers cannot get operating authorities broad enough to take these many factors into account, they may expect to lose traffic.

69/ For example, where the authorized destination is a particular city and the area within 20 miles of the city limits, a trucker may not be certain that the consignee's location is within the prescribed area.

70/ Report of ICC examiner on application MC-25798 (sub 6) dated April 20, 1951. Op. cit.

71/ By means of extensions pending decision upon applications for permanent certificates.

72/ See discussion beginning at page 30.

73/ As noted above, the trade reports a steady increase in the number of private brands under which Florida frozen orange juice concentrate is being marketed.

Because their product is highly perishable, most shippers of concentrate have tended to select motor carriers who could give single-line service from production or storage points to consuming areas. 74/ One large shipper has always considered interlining of truck equipment hazardous because of the divided responsibility for the shipment, and the possibility that the refrigerating unit on the trailer might fail while it was unattended at an interchange point. According to this firm, trailers are left at interchange points anywhere from 15 minutes to 6 hours before they may continue on their way. 75/

However, because the territory within which each trucker is authorized to operate has been limited by the ICC, not all truckers have been able to give through service on all hauls. On the contrary, because both producing and consuming areas have widened so rapidly, the majority of the motor carriers transporting concentrate frequently interline their trailers with other motor carriers in order to be able to move cargoes to destination. Much as they have disliked the practice, the rapid growth of the industry and the lag in territorial extension of motor carrier operating authorities have made it necessary for shippers either to accept the practice of interlining, or to ship by rail.

A related disadvantage of motor carrier service mentioned by several shippers concerns the service offered by those carriers whose operating rights permit them to operate only over certain specified routes. These carriers, known as regular route carriers, can serve points only on their own lines or points on the lines of other carriers willing to interline their trailers. Although they use regular route carriers when possible, 76/ shippers find that this service frequently does not have the flexibility needed to reach new markets in new territories. A large packer of concentrate, for example, explained that it could not use the services of many "regular routers" because it sells "direct to anybody, anywhere, to small buyers, to distributors, corporate chains..." 77/

Shippers also report difficulty in getting special service from some motor carriers. While consumer acceptance of concentrate has been rapid, until very recently the demand for the product has been proportionately

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74/ Report of ICC examiner on application MC-105813 (sub 3), dated October 7, 1952.

75/ ICC hearings on application MC-95540 (sub 173), March 30, 1950. Op. cit.

76/ Report of ICC examiner on application MC-105633 (sub 10) et al, dated April 13, 1951; ICC hearings on application MC-107515 (sub 10), Jan. 24, 1951, and MC-95540 (sub 173), March 30, 1950. Op. cit.

77/ ICC hearings on applications MC-95540 (sub 18), March 22, 1950, and MC-95540 (sub 173), March 30, 1950. Op. cit.

less in the smaller cities and rural areas than in the big city markets. Hence, distributors in the smaller markets have rarely wanted full truckloads of frozen concentrate at any one time. Nor have many of them been able until recently to warehouse full truckloads. Consequently, frequent deliveries to such distributors must often be made. When routing by truck, therefore, shippers need the services of some carriers who can make frequent drop-off deliveries at more than one point in the territory in which they are authorized to operate.

One large shipper considers that drop-off delivery service is requisite because its sales are made in units of 5 cases "and on up to 1 million cases." 78/ Another reported that a third of its shipments are stop-in-transit. 79/ A citrus canners cooperative reports the need of as many as four drop-offs from one truck. 80/ Still another large producer said that it needs carriers who can stop in transit to unload, and that as its markets expand, much more such service will be needed because their practice has been to "hit the big cities first, and then attempt complete saturation of all cities and towns." 81/ And other large shippers have also testified many times in hearings before the ICC as to the urgent need for motor carriers which can make drop-off deliveries. The fact that some motor carriers operating in or through certain areas do not have drop-off privileges has thus created problems for shippers who would prefer to use motor carrier service for some shipments.

Several shippers have reported that State motor vehicle size and weight restrictions frequently make it difficult for them to ship by truck to some destinations.

Shippers consider that motor carrier service has various additional limitations over which the carriers have direct control. Some of these deficiencies undoubtedly have resulted in loss of business for certain carriers. According to some shippers, neither motor carrier equipment nor handling techniques are keeping pace with the needs of the concentrate industry. They report that many trailers sent to their platforms are inadequately insulated and inadequately refrigerated. As a result, say the shippers, some equipment is entirely incapable of maintaining the temperature required for the safe transportation of frozen concentrate. Not every type of trailer can be used, they point out--heavy-duty mechanical refrigeration and a minimum of 6 inches of insulation are "musts." Nor can any driver haul concentrate without special training and adequate

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78/ ICC hearings on application MC-95540 (sub 173), March 30, 1950. Op. cit.
79/ Report of ICC examiner on application MC-108838 (sub 166) et al, dated Nov. 7, 1952. Op. cit.
80/ ICC hearings on application MC-107107 (sub 9), March 23, 1949. Op. cit.
81/ ICC hearings on application MC-95540 (sub 173), March 30, 1950. Op. cit.

supervision. 82/ Moreover, say some of the shippers, too many operators fail to precool their trailers; too many fail to check the operation of their equipment when on the road; and too few have facilities for repairing refrigeration equipment while in transit.

One large processor has reported dissatisfaction with the temperatures maintained in the trailers used by carriers. So concerned has this shipper become, as a matter of fact, that it issued a leaflet entitled, "Temperature Problems in the Concentrate Industry," which has been suggested as required reading for drivers and dispatchers handling frozen concentrate. This company is also testing its own trailers to determine what improvements can be made in refrigerating systems. 83/

Shippers have been quick to admit that manufacturers have made important improvements in both the trailers and the refrigerating systems used by motor carriers. Nevertheless, they continue to urge truckers to get in step with the industry if they want a share of the concentrate traffic.

Other unfavorable factors which have been cited occasionally by shippers as reasons for dissatisfaction with truck service include such things as failure of truckers to pick up loads on the day promised; failure to notify shippers of delays in transit; failure to notify receivers of their arrival; and a tendency of some truckers to overload, thereby making themselves liable to arrest and delay. 84/

82/ See reports of shippers on adequacy of frozen food transportation service in Distribution Age, 52(10):24, Nov. 1953; and Quick Frozen Foods, 15(9):160, April 1953.

83/ Memorandum report of meeting held in Chicago, Ill. Nov. 21, 1952, by special committee of Florida frozen citrus concentrate shippers and others. Op. cit.

84/ Quick Frozen Foods, 14(3):55, Oct. 1951; 15(4):55, Nov. 1952; and 16(4):63, Nov. 1953.

Some Shipper Views on Rail Service

Shippers of concentrate have long recognized that rail service offers certain advantages over truck service. Railroads are more reliable than trucks, say shippers. They maintain regular schedules, they are more economical than trucks on long hauls, they can handle larger volumes at one time, and they permit diversion of shipments while in transit.

Despite these favorable factors, shippers have testified that rail service has limitations. The regulatory process, however, has not significantly affected the railroads' ability to compete for traffic in frozen concentrate. The limitations of rail service cited by shippers are within the power of the railroads themselves to correct.

The main complaint of those shippers who testified at hearings on operating authorities concerned the railroads' inability to supply a sufficient number of mechanically refrigerated cars.

As noted, the Fruit Growers Express Company reportedly had 65 mechanically refrigerated cars in service during the 1950-51 concentrate processing season, and 165 such cars in service during the 1952-53 season. 85/ According to testimony of a representative of this company 86/, 95 percent of the mechanical cars available in the 1952-53 season were used by shippers of concentrate. According to the same witness, mechanical cars can normally make 2 to 3 round trips a month between Florida producing points and New York City. 87/ In the 1950-51 season, the railroads hauled 1,792 carloads of frozen concentrate out of Florida, and in the 1952-53 season, 4,358 carloads 88/, or about 200 million pounds. 89/

85/ Early in 1954, the President of the Fruit Growers Express Company stated that his firm then had 306 mechanically refrigerated cars in service and 151 on order. (United Fresh Fruit and Vegetable Association, Refrigerator Car Committee, Tenth Annual Conference, Proceedings, page 24. February 1, 1954.) As of approximately February 1, 1955, the same official stated that his firm had 468 mechanically refrigerated cars in service and 100 on order. Presumably, of course, not all of the 306 cars in 1954 or the 468 cars in 1955 were available to shippers of concentrate. Moreover, the 1953-54 output of concentrate was 66 million gallons--a 40 percent increase over 1952-53.

86/ ICC hearings on application MC-108838 (sub 166), June 1952.

87/ Ibid.

88/ Information from Fruit Growers Express Company, Washington, D. C.

89/ Information from exhibit presented by the Florida Canners Association at ICC hearings on application MC-64110 (sub 13) et al, Tampa, Fla. Jan. 18, 1954. Op. cit.

Shipments of concentrate are normally heavy during the beginning of the processing season when carryover stocks are at their lowest point, and again at the peak of the season, usually in March of each year. Moreover, seasonal movement of some perishables and frozen foods originating in southern States is heavy during a part of the concentrate processing season. Under the car supply circumstances described, shippers generally might well have been obliged to use ice-and-salt cars for a large part of their concentrate shipments during the recent seasons of the period covered by this report. Such, at least, has been the testimony of nearly all shippers in their appearances before the ICC in recent years.

One of the largest of the Florida processors testified that the railroads "simply could not furnish cars when they were needed" even though the lines were notified well in advance of scheduled shipments. 90/ This company also testified to its need for regular transportation service inasmuch as it maintains no more than a 2-week supply of concentrate at distribution warehouses, and most of its orders, therefore, are "rush." 91/ Another large shipper reported that over an 18-day period in April 1952, 79 cars were ordered and 59 were delivered. 92/ Other shippers testified at various times to the long waits for cars and to their inability to get the type of car ordered. All complained that at the peak of the processing season, when cars were most needed, they were hardest to get.

In the light of these conditions, shippers of frozen concentrate met in 1952 with railroad and refrigerator carline officials to discuss the car situation. At this meeting, shippers stated that 93/:

> "Unless the railroads can furnish enough mechanically refrigerated cars in the very near future to move this product safely to market, it is fairly obvious that the industry will find other means of accomplishing this end. Motor carriers are improving their equipment for handling this type of freight, and two or three of the largest shippers are giving serious consideration to putting large fleets of their own into service."

90/ ICC hearings on application MC-95540 (sub 173), March 30, 1950. Op. cit.
91/ Ibid., and hearings on application MC-25798 (sub 6), Jan. 22, 1951, Op. cit.
92/ ICC hearings on application MC-108838 (sub 166), May 1952.
93/ Memorandum report of meeting held in Chicago, Ill., Nov. 21, 1952, by special committee of Florida frozen citrus concentrate shippers and others. Op. cit.

Hearings are likewise replete with shippers' testimony about their dissatisfaction with the temperatures maintained by the ice-and-salt cars. One shipper reported that temperatures in ice-and-salt rail cars frequently rose above the maximum which the industry considers safe. 94/ A Florida citrus canners cooperative testified that temperatures of rail cars used to haul their shipments were frequently 16°F. at the point of delivery. 95/ Another witness testified that the temperature in an ice-and-salt car used for shipping concentrate to Oregon rose to 45°F. And another reported that the temperature in a similar car rose to 22°F., thereby cutting down the "keeping properties of the concentrate to 15 days." 96/

A representative of a large packer of concentrate testified in 1950 that all the complaints it had received about the condition of concentrate on delivery concerned the production shipped by rail in ice-and-salt cars. 97/ It may be of interest to note, however, that just about two years later at a meeting in Chicago a representative of the same company said: "...Particularly are mechanical cars more satisfactory on long hauls than on short hauls..." and that if his company "had sufficient mechanical cars to protect...long hauls to the Transcontinental Territory" it could "with some degree of justification continue the use of ice-and-salt cars on the shorter hauls, with the resultant less transit time to the destinations east of the Mississippi until the rail lines and/or car lines felt it more opportune to invest heavily in a large fleet of...mechanical cars..." 98/

One large shipper's concern over the rail temperature problem was such that, in the period under study, it operated a small fleet of its own trucks to study, among other things, the feasibility of setting up a mechanically refrigerated truck service to take better care of its product. 99/

Another frequent complaint of shippers has been that rail service is too slow. Although speed is no longer as all-important to shippers as it was in the early days of concentrate production when the distribution "pipelines" were not yet filled, shippers state that it is still important in some instances. They explain that dealers in areas without warehouse facilities often need deliveries in a hurry, and that fast deliveries are often needed in new areas where competition for business is keen.

94/ ICC hearings on application MC-95540 (sub 173), March 30, 1950. Op. cit.

95/ Report of ICC examiner on application MC-105813 (sub 3), dated Oct. 7, 1952. Op. cit.

96/ ICC hearings on application MC-108838 (sub 166), July 1952. Op. cit.

97/ ICC hearings on application MC-95540 (sub 173), March 30, 1950. Op. cit.

98/ Memorandum report of meeting held in Chicago, Ill., Nov. 21, 1952 by special committee of Florida frozen citrus concentrate shippers and others. Op. cit.

99/ Ibid.

A number of shippers have objected to excessive time in transit for still another reason. They point out that, because so many shipments must be made in ice-and-salt cars, much time is lost in switching cars in and out of icing stations. Furthermore, say the shippers, because of delays en route, additional icing is frequently necessary, a factor which increases the railroads' charge for refrigeration service. 1/

Various witnesses have testified in many hearings about the relative transit time required by rail and truck service. Testimony of a representative of one of the larger shippers is an example. According to the witness, 2/ the company receives 5-day rail delivery service on shipments from its Florida plants to Jersey City, New York City, and Chicago. Rail cars, it was reported, usually arrive on the 4th day, but 1 day is required to perform the switching. Warehouses will not unload on Saturday or Sunday, and if a shipment arrives on Friday, it is spotted on Saturday and will not be unloaded until Monday. However, according to this witness and others, if shipments are made by truck on Wednesday, they will arrive at destination on Friday and will be unloaded the same day. Although the railroads have not contradicted shippers' testimony, they contend that the elapsed time between production and initial shipment from origin to time of disposition at storage is measured in weeks and months, and that the difference in time in transit is, therefore, not a matter of consequence. 3/

Some shippers have held that lack of sufficient mechanical refrigerator cars has also been responsible for excessive transit time for these cars. At a 1952 meeting of shippers and railroad representatives in Chicago, 4/ it was pointed out that because so few mechanical cars were being supplied by the railroads, shippers were forced to use a great many ice-and-salt cars. 5/ Inasmuch as both types of cars travel in the same train, they have the same transit time between origin and destination. Cars loaded at Winter Garden, Fla., and destined for

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1/ The per car refrigeration charge quoted by the railroads includes the cost of initial icing and all reicing required between origin and destination. It is apparent, therefore, that the shippers' statement noted above refers to the fact that, because rail service tends to be slow, the charge for refrigeration is higher than it would be if less time were required in transit.

2/ Report of ICC examiner on application MC-95540 (sub 188), dated June 25, 1951. Op. cit.

3/ Report of ICC examiner on application MC-25798 (sub 6) dated April 20, 1951. Op. cit.

4/ Memorandum report of meeting held in Chicago, Ill., Nov. 21, 1952, by special committee of Florida frozen citrus concentrate shippers and others. Op. cit.

5/ However, in considering the statements made by shippers with reference to the inadequacy of refrigerator cars using ice and salt for the protection of concentrate and the effect of the use of such cars upon railroad service, it should be remembered that the mechanical refrigerator car fleet has been considerably expanded since those statements were made.

Jersey City, N. J., it was explained, would be initially iced and "topped off" at Wildwood, Fla. Then they would stop for reicing at Hamlet, N. C., and Potomac Yards, Va., and would be iced again at Jersey City if bunkers were less than three-fourths full. Standard cars would require servicing at these points. Mechanical cars would not, but they would be checked, and would move along with the train while the standard ice-and-salt cars were being serviced. 6/

An additional complaint has been that the railroads do not schedule enough stop-off and less-than-carload service. Shippers' need for delivery of less-than-carload lots to small distributors who do not have warehouse facilities, and their need for frequent deliveries to rapidly growing market areas have already been discussed. Nearly all shippers have testified not only concerning the difficulty of scheduling less-than-carload shipments in the first place, but of the delay and damage which frequently ensues if less-than-carload or stop-off service is given. 7/ With as high as one-third of the shipments of some shippers classified as stop-off, the effect on certain shippers of a lack of flexibility in rail service is clear.

Differences in Carrier Hauling Charges

Because the ICC hearings involving motor carrier applications for authority to transport concentrate were not rate hearings, neither the question of rate levels nor that of the relationship between truck and rail rates was at issue. However, when making a choice of carrier, shippers of course consider hauling charges.

A detailed analysis of the structure of rail and motor carrier rates has not been undertaken in this report. Rail and truck rates for hauling concentrate from Lake Wales, Fla.--selected as a central point of origin--to 4 major markets in the Northeastern States and to 4 markets in the North Central States over a 3-year period have, however, been determined and are shown in table 8. Because concentrate is shipped in varying amounts throughout the year, the rates shown in the table represent those in effect at the midpoint of each shipping season.

It is the practice of railroads to quote rates on refrigerated commodities in two segments--a line haul charge in cents per 100 pounds and a refrigeration charge in dollars per carload. In the table, both segments have been combined and appear as a single rate per 100 pounds. Truck rates, on the other hand, are quoted by the carriers exactly as shown in the table--as a single rate which includes a charge for refrigeration. It should be explained further that it is the general practice of railroads to quote progressively lower rates for progressively higher minimum weights. In each instance, data shown in the table represent

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6/ Memorandum report of meeting held in Chicago, Ill., Nov. 21, 1952, by special committee of Florida frozen citrus concentrate shippers and others. Op. cit.

7/ See, for example, shipper testimony in hearings on applications MC-95540 (sub 173), op. cit., MC-105633 (sub 10), op. cit.

Table 8. - Comparison of rail and truck rates on frozen orange juice concentrate moving from Lake Wales, Florida to 8 major markets

Origin	Destination	Date	Minimum weight: Rail	Minimum weight: Truck	Rate per 100 lbs. 1/: Rail	Rate per 100 lbs. 1/: Truck	Rate per case 2/: Rail 3/	Rate per case 2/: Truck	Differential - truck over rail: Per 100 lb.		Differential - truck over rail: Per case
			Pounds	Pounds	Dollars	Dollars	Cents	Cents	Cents	Pct.	Cents
Lake Wales, Fla.	Boston, Mass.	6-1-50	36,000	36,000	1.70	1.75	47.60	49.00	5	3	1.40
		6-1-51	36,000	36,000	1.54	1.75	43.12	49.00	21	14	5.88
		6-1-52	36,000	27,000	1.71	1.86	47.88	52.08	15	9	4.20
		6-1-53	36,000	27,000	1.63 4/	1.86	45.64	52.08	23	14	6.44
Lake Wales, Fla.	New York, N. Y.	6-1-50	36,000	36,000	1.58	1.64	44.24	45.92	6	4	1.68
		6-1-51	36,000	36,000	1.47	1.64	41.16	45.92	17	12	4.76
		6-1-52	36,000	27,000	1.63	1.74	45.64	48.72	11	7	3.08
		6-1-53	36,000	27,000	1.56 4/	1.74	43.68	48.72	18	12	5.04
Lake Wales, Fla.	Pittsburgh, Pa.	6-1-50	36,000	36,000	1.72	1.75	48.16	49.00	3	2	.84
		6-1-51	36,000	36,000	1.60	1.75	44.80	49.00	15	9	4.20
		6-1-52	36,000	27,000	1.78	1.86	49.84	52.08	8	4	2.24
		6-1-53	36,000	27,000	1.69 4/	1.96	47.32	54.88	27	16	7.56
Lake Wales, Fla.	Baltimore, Md.	6-1-50	36,000	36,000	1.50	1.54	42.00	43.12	4	3	1.12
		6-1-51	36,000	36,000	1.38	1.54	38.64	43.12	16	12	4.48
		6-1-52	36,000	27,000	1.54	1.63	43.12	45.64	9	6	2.52
		6-1-53	36,000	27,000	1.48 4/	1.66	41.44	46.48	18	12	5.04
Lake Wales, Fla.	Cincinnati, Ohio	6-1-50	36,000	36,000	1.71	1.57	47.88	43.96	-14	-8	-3.92
		6-1-51	36,000	36,000	1.47	1.57	41.16	43.96	10	7	2.80
		6-1-52	36,000	27,000	1.63	1.66	45.64	46.48	3	2	.84
		6-1-53	36,000	27,000	1.56 4/	1.73	43.68	48.44	17	11	4.76
Lake Wales, Fla.	Detroit, Mich.	6-1-50	36,000	36,000	1.94	1.81	54.32	50.68	-13	-7	-3.64
		6-1-51	36,000	36,000	1.66	1.81	46.48	50.68	15	9	4.20
		6-1-52	36,000	27,000	1.85	1.92	51.80	53.76	7	4	1.96
		6-1-53	36,000	27,000	1.75 4/	1.93	49.00	54.04	18	10	5.04
Lake Wales, Fla.	St. Louis, Mo.	6-1-50	36,000	36,000	1.84	1.70	51.52	47.60	-14	-8	-3.92
		6-1-51	36,000	36,000	1.57	1.70	43.96	47.60	13	8	3.64
		6-1-52	36,000	27,000	1.75	1.80	49.00	50.40	5	3	1.40
		6-1-53	36,000	27,000	1.66 4/	1.82	46.48	50.96	16	10	4.48
Lake Wales, Fla.	Chicago, Ill.	6-1-50	36,000	36,000	1.94	1.81	54.32	50.68	-13	-7	-3.64
		6-1-51	36,000	36,000	1.65	1.81	46.20	50.68	16	10	4.48
		6-1-52	36,000	27,000	1.84	1.92	51.52	53.76	8	4	2.24
		6-1-53	36,000	27,000	1.74 4/	1.93	48.72	54.04	19	11	5.32

1/ Rate includes charge for mechanical refrigeration.
2/ Includes charge for refrigeration. Shipping weight of 1 case of 48 - 6 oz. cans is 28 pounds.
3/ Assuming 70,000 pounds per carload.
4/ Hold-down provision of Ex Parte 175, effective May 2, 1952, limiting increase on canned and preserved fruits to 12 cents per 100 pounds, extended to frozen fruits and juices effective July 7, 1952.

Rates and charges, developed from tariffs on file with the Interstate Commerce Commission, were supplied by Transportation and Warehousing Division, Commodity Stabilization Service, U.S. Department of Agriculture. 3 percent Federal transportation tax, levied on total freight bill, is not included.

the lowest rates quoted by the carriers for moving concentrate from the origin shown to the destination shown, and relate to the highest minimum weights. The refrigeration charge in each instance is the charge made for mechanical refrigeration.

Both rail and truck rates have fluctuated considerably during the past several years as each carrier has "jockeyed" for a favorable position in the competitive battle for concentrate traffic. In general, however, it appears that the railroads have taken the lead in making rate adjustments.

Between June 1, 1950, and June 1, 1953, rail refrigeration charges remained unchanged. Rail line haul charges on concentrate shipped from Lake Wales, Fla., to the 8 major markets shown in table 8 changed several times, and at the end of the period were lower than they were at the beginning. On June 15, 1950, for example, the rail line haul charge on concentrate shipped to Cincinnati was reduced sharply to meet truck competition. Similar rate reductions were made effective July 1, 1950 on shipments to Chicago and St. Louis; on September 8, 1950 to Detroit; and on September 10, 1950 to the remaining 4 cities.

Effective April 4, 1951, however, rail line haul charges to all 8 markets were increased in accordance with the ICC decision in the Ex Parte 175 proceeding which permitted the railroads to increase their hauling charges on a large number of commodities. Another change in line haul charges, effective August 28, 1951, under Ex Parte 175, again raised the rail rate on concentrate, although the new rate was lower than that in effect on June 1, 1950. At their own request, and despite objection from motor carriers, on December 1, 1951, the railroads were permitted to reduce line haul charges in order to meet truck competition.

Effective May 2, 1952, under Ex Parte 175, the railroads were granted rate increases on most commodities, including concentrate. This increase raised the line haul charge on concentrate, transported to the 8 markets, a cent or two per hundred pounds above that in effect on June 1, 1950. As of July 7, 1952, however, the increase on concentrate, which had become effective May 2, 1952, was limited by the railroads to 12 cents a hundred pounds. This limitation brought the line haul charge on concentrate, as of June 1, 1953, substantially below what it had been on June 1, 1950.

Although truck rates have shown somewhat more stability over the 3-year period, they were substantially higher on June 1, 1953, than they were on June 1, 1950. Between June 1, 1951, and June 1, 1952, the change in truck rates to all 8 markets came about as the result of two increases in rates granted to the motor carriers by the ICC--one increase being occasioned by a reduction in the minimum weight from 36,000 to 27,000 pounds, and the other increase being authorized to bring truck rates in line with rail rates. The latter had been increased approximately 6 percent on August 28, 1951, under Ex Parte 175. A further increase in truck rates, which occurred between June 1, 1952, and June 1, 1953, on concentrate shipped to 6 of the 8 markets, followed the ICC grant of the motor carriers' request for increases to selected points only.

Despite the series of rate adjustments described, motortruck rates on frozen concentrate shipped to the cities shown in table 8 have been consistently higher than rail rates during most of the period June 1, 1950 to June 1, 1953. 8/ For example, truck rates from Florida to Boston were 5 cents a hundred pounds greater than rail rates as of June 1, 1950. The railroads evidently regarded this spread as too narrow, for they proposed a rate reduction. On September 10, 1950, a rail rate cut was granted, and the spread between truck and rail rates was thereby widened to 21 cents per hundred pounds. This differential was narrowed to 15 cents a hundred pounds by June 1, 1952, following the series of rail rate adjustments described above. A subsequent decrease in rail rates, effective July 7, 1952, further widened the spread between rail and truck rates. As of June 1, 1953, the difference was 23 cents a hundred pounds on concentrate shipments moving between Florida and Boston.

It will be noted (table 8) that on June 1, 1950, truck rates on frozen concentrate shipped from Florida to 4 markets--Cincinnati, Detroit, St. Louis, and Chicago--were substantially below the rail rates then in effect. By June 1, 1953, the adjustments in both rail and truck rates described above had resulted in truck rates exceeding the rail rates to these 4 points. The differential in favor of rail was approximately the same as that shown at the remaining markets.

Table 8 shows that during the 1952-53 season, truck rates on shipments of concentrate to 8 major markets exceeded rail rates by amounts ranging from 16 to 27 cents per hundred pounds. When a choice of carrier is being made, it is not likely that freight rates are ever the sole factor considered by shippers or receivers of concentrate. It is certain, however, that the relationship between the rates charged by each type of carrier is considered. Such a wide disparity between rates as that shown in table 8 might, therefore, suggest that the carriers hauling at the lower rates would get the greater share of available business.

However, in order to measure the effect of differences in rates on the share of traffic allocated to each type of carrier, the volume hauled by rail and by truck to specific destinations must be known. Unfortunately, data on shipments to individual markets are not available. The exhibit filed by the Florida Canners Association in connection with ICC hearings on motor carrier applications, referred to above, contains information which shows, for the 1952-53 season only, the volume of concentrate shipped out of Florida by rail and by truck to Statewide destinations. It includes the District of Columbia and the States here considered.

From these data, as indicated on page 60 of this report, it was determined that the railroads moved 54 percent of all the concentrate shipped out of Florida to the regions covered by this report. On the basis of available information, however, attempts to tie in volume shipments to Statewide destinations with rate information for specific markets are not feasible.

8/ It is recognized that at certain cities some local hauling charges may be incurred in connection with rail shipments of concentrate.

Data show, nevertheless, that despite some apparent rate disadvantage, motortrucks in the 1952-53 season carried a substantial volume--46 percent--of all the concentrate shipped out of Florida to destinations in the regions covered by this report. Factors favoring truck transportation to specific destinations are not known. Distributors outside of large cities may conceivably find that because their warehouses are not on rail sidings, their facilities are more accessible to truck than to rail service. And perhaps distributors in small markets, who need frequent, fast, small deliveries, are willing to pay somewhat more for truck service in order to get supplies as needed. Moreover, if any local hauling charges incurred by receivers located off rail lines were added to the rail charges shown in table 8, the unfavorable truck rate differential at some markets might be reduced or even eliminated.

Those few shippers of concentrate who have commented on truck rates have called them "unrealistic" and "hopelessly muddled." 9/ Concerning rail rates and charges, shippers have had somewhat more to say. They say, for example, that rail "heater and icing charges should be included in the rates;" that "rail rates contain too many hidden charges;" and that the "railroads should provide a rate differential based on quantity shipments." 10/ Several have also made the comment that rail refrigeration charges are too high. 11/ With respect to this matter, it might be mentioned that in October 1953 the railroads filed a petition with the ICC asking for a 30-percent increase in "per car" refrigeration charges, with exceptions, and special regional increases in charges for services of icing and reicing. 12/ Hearings got under way in December 1953; final hearings were scheduled to begin January 25, 1955.

Very few motor carriers have commented publicly on the concentrate rate situation. One testified at an ICC hearing on a motor carrier application that during March of 1952 he "lost approximately 400,000 pounds of concentrate traffic which he might have handled had rates been comparable with the rail rates at the time." 13/ Another testified at the same hearing that "on or about January 1, 1952, motor carriers participating in the concentrate traffic increased their rates 6 percent. Railroads had taken a 6-percent increase with a maximum of 6 cents per hundredweight. Since the motor carrier rates were higher than the rail rates, the shippers of concentrate gave most of their traffic to the railroads..." 14/

9/ Quick Frozen Foods, 14(3):55, Oct. 1951.
10/ Quick Frozen Foods, 14(3):55, Oct. 1951; 15(4), Nov. 1952; and 16(4), Nov. 1953.
11/ Quick Frozen Foods, 14(3), Oct. 1951; 15(4), Nov. 1952; and 16(4), Nov. 1953.
12/ ICC. No. 31342. Proposed Increased Refrigeration Charges.
13/ ICC examiner's report on application MC-108838 (sub 166) et al, dated Nov. 7, 1952, Op. cit.
14/ Ibid.

In summary, it appears that whatever the reasons for an individual shipper's choice of carrier--adequacy of equipment, availability of equipment, flexibility of service, speed of service, ability to make drop-off deliveries, ability to reach major origins and destinations directly, lower rates or other factors--shippers' allocations of northbound concentrate traffic have favored the railroads during a majority of the seasons since concentrate was first marketed commercially.

SOME PROBABLE NEAR-TERM DEVELOPMENTS

Only about a third of all American families have yet become consumers of frozen orange juice concentrate, including that produced in both Florida and California. Data indicate, moreover, that the rate of increase in consumer purchases of concentrate has been leveling off in most large markets in the regions covered by this report. In the spring of 1954, however, a substantial dip in the retail price of concentrate resulted in increased consumer purchases generally. This fact might indicate that there is still opportunity for expansion of sales of concentrate in these regions. Notwithstanding this sales increase, however, other developments, either projected or already in the making, may stabilize or even reduce future demand for refrigerated transportation service to the area under consideration.

It is possible that research now under way may ultimately develop a high quality unfrozen orange juice concentrate. Should such a product be developed, shippers would not need refrigerated transportation equipment to move it to consumers. Further, successful development of a 5-to-1 concentrate (5 parts of water to 1 of concentrate) has been announced by the U. S. Department of Agriculture Fruit and Vegetable Chemistry Laboratory at Pasadena, Calif. Commercial production of this super-concentrated juice might reduce the volume of shipments somewhat, and thus might reduce the number of for-hire units of transportation equipment required to move the product to consumers.

Several Florida processors are giving serious consideration to putting their own truck fleets into service in order to assure safe delivery of their product. One large company already has a considerable number of motortrucks in operation. Moreover, spokesmen for the frozen food industry in general are talking of shipper-owned rail refrigerator cars. If shipper-owned equipment should become more common, the volume of business given to commercial carriers would doubtless diminish in proportion, although the railroads, at least, would continue to get some revenue from the movement of shipper-owned refrigerator cars over their lines.

Should the plastic pouch replace to any extent the conventional tin can for packaging frozen concentrate, the effect on transportation facilities and service might be severe. Plastic weighs considerably less than tin. Hence, use of the plastic container would make it possible for carriers to transport larger volumes in each unit of equipment, thus cutting down on the number of units required to haul a given amount of

concentrate. In addition, shipments of tin and packing equipment now moved to Florida processing plants by rail, truck, and boat, might well dwindle, thereby further reducing carrier revenue from traffic associated with the concentrate industry. Although the pouch package was introduced several years ago, it has not yet replaced the conventional consumer package, largely because it requires a lower temperature while in transit. Research on packaging is continuing, however.

Expanded storage facilities at processing plants will also have a direct effect on both the amount and the kind of transportation service needed by shippers. As long as plant storage facilities keep pace with concentrate output, there is likely to be less need for extra transportation service at certain seasons. Moreover, plant storage should even the flow of concentrate to market over the year, thus making possible the release of some specialized transportation equipment to shippers of other commodities.

So far as the future of motortruck service to northern markets is concerned, several special factors may limit its expansion.

If processors store increasing amounts of their own product, many motor truckers will need additional authority to pick up at Florida plant storage points rather than at non-plant storage points farther north--Jacksonville, Savannah, Macon, etc. For many, this will mean that they will have to travel longer distances to get cargoes. Unless they have authority for such hauling and for return hauls, and unless they have reasonable assurance of cargoes to haul on return trips, many may find that serving the more distant plant storage points is not feasible.

State size and weight restrictions on motor vehicles have proved troublesome to shippers who want to use truck service. The effect of some State restrictions is already especially severe on refrigerated motor carriers. Hence, any further reduction in permitted sizes and weights would reduce payloads. Higher hauling charges would be expected to follow.

Many States are considering the imposition of some form of weight-distance tax on commercial motor vehicles. Several are already collecting such taxes. Because refrigerated truck equipment is heavy, and because it may make many trips through a given State in the course of a year, such tax levies tend to raise operating costs. These levies may have to be passed on to the shippers or receivers of concentrate in the form of higher rates.

Regulations with respect to the lease and interchange of motor carrier equipment have been issued by the Interstate Commerce Commission. 15/

15/ ICC. Ex Parte MC-43 proceedings. See also: Federal Register, May 23, 1951, pp. 4804-4806, and Feb. 12, 1955, p. 921; Traffic World, Feb. 12, 1955, 7(95): 13-14; Transport Topics, Feb. 14, 1955, No. 1018, pp. 1, 12.

Some of these regulations have been modified somewhat without having gone into operation. Moreover, the effective date of some of these regulations has been repeatedly postponed. The regulations that are still inoperative are currently scheduled to take effect on March 1, 1956. As now written, they would sharply restrict the trip-leasing of motor vehicles--i.e., leasing for a single trip only, such as for a backhaul by a lessee after the owner has operated the vehicle on the outbound trip. Furthermore, owner-operators who lease to regulated carriers--i.e., to common and contract carriers--would no longer be allowed to fix compensation on a basis of a percentage of rates or earnings. Interchange of vehicles among common carriers would be subject to limitations. Many carriers hauling Florida concentrate have utilized equipment leased from others to take care of sharp fluctuations in their traffic, and have also leased their own equipment to others to balance their load factors. Because the regulations, particularly the restriction on trip-leasing, could prevent maximum utilization of trucking facilities, higher unit costs and higher charges for truck transportation might follow. There is, however, still considerable uncertainty as to the eventual character of the trip-leasing regulations; hence, it is impossible to say just what their effects on concentrate hauling might be.

In recent seasons, the motor carriers have been losing ground percentagewise to the railroads in the battle for concentrate traffic. Inasmuch as the competitive situation is so precariously balanced, any further increase in rates charged by motor carriers for transporting concentrate might swing even more business to the railroads, and force some motor carriers out of business.

The preferences of Florida shippers with respect to transportation media used to move frozen concentrate to the regions covered by this report are assuming a fairly definite pattern. Truck service is emphasized while markets are building, but rail shipment outstrips the movement by truck when markets have become well established. It would thus appear that the greater proportion of all shipments of concentrate to the regions here studied may continue to be by rail, although the tonnage transported by the motor carriers may continue to show some increase.

As the rate of market growth slows in the States covered by this report, shippers of Florida concentrate have been turning their attention to the development of markets in the West. 16/ Florida shippers are of the opinion that because the western markets have been the last to receive sales attention, they will expand more rapidly than did those in the North and East. What the western distribution pattern for Florida concentrate will be in future seasons, however, will depend upon several factors--namely, whether Florida orange production continues to increase, whether western consumer demand for the Florida product flourishes, whether distributors are able to store and handle the product, and whether the supply of mechanically refrigerated equipment available for shipment of concentrate to the West is adequate.

16/ The rate of increase in production of California concentrate has been far less than that of Florida concentrate.

The transportation pattern for Florida concentrate already moving to western markets is not shaping up as a repetition of that which developed in the early years of the movement of this product to the East. The total supply of mechanically refrigerated rail cars is very different now from that in the years when Florida concentrate was first produced. The gap between the number of cars needed and the number available has lessened.

The rates of motor common carriers to western destinations are generally not competitive with rail rates at present, particularly those on carloads. Moreover, the long hauls to western markets and the probable scarcity of return cargoes from the West may preclude any scaling down of truck rates. And, as has been pointed out, one of the large Florida processors is already moving some concentrate to the West in its own trucks. This concern shipped 11 million pounds of Florida concentrate into California and 8 million pounds to other States west of the Mississippi River in a single recent season. It is in a particularly favorable position to undertake its own transportation service. It has, in the West, a large lemonade operation, the entire output of which moves eastward, and a grape operation in New York State which provides a reasonable amount of freight movement to the South. Several other Florida processors are also considering the feasibility of using their own equipment to serve western markets.

Despite the current extensive use of mechanical cars for rail shipment of concentrate to western destinations, Florida shippers are showing an interest in the development of adequate truck service to these same destinations--service by carriers having satisfactory refrigeration equipment and having operating authority, with adequately broad scope as to origin and destination. These shippers are alert to the value of competition between modes of transport.

In the expansion of the western market for Florida concentrate, some of the problems and dislocations could well be tempered as a result of the experience gained from 1945 onward in meeting sudden demands for transportation service to eastern markets. Despite any divergences between the concentrate transportation patterns for the two halves of the country, there is enough in common to warrant keeping an eye on the eastern experience as the western pattern emerges. The common factors are dynamic industry growth, and rivalry between modes of transport which differ in the type of regulation to which they are subject.

Operation of the Florida frozen orange juice concentrate industry in the period 1945-53 has amply demonstrated that there is need for the services of both rail and motortruck carriers. Ultimately, the fact that truck rates on concentrate to both the East and the West tend to be higher than rail rates may, in combination with other factors, mean some loss of traffic for the trucks. The concentrate trucking business is highly competitive. Some casualties among motor carriers of concentrate have, as noted, already occurred. Motor carriers, however, will doubtless continue to bid for a substantial share of the main-stream traffic to all markets. From their own competitive standpoint, they will doubtless also continue to view the above-described regulatory practices as a basic handicap in the race for business.

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